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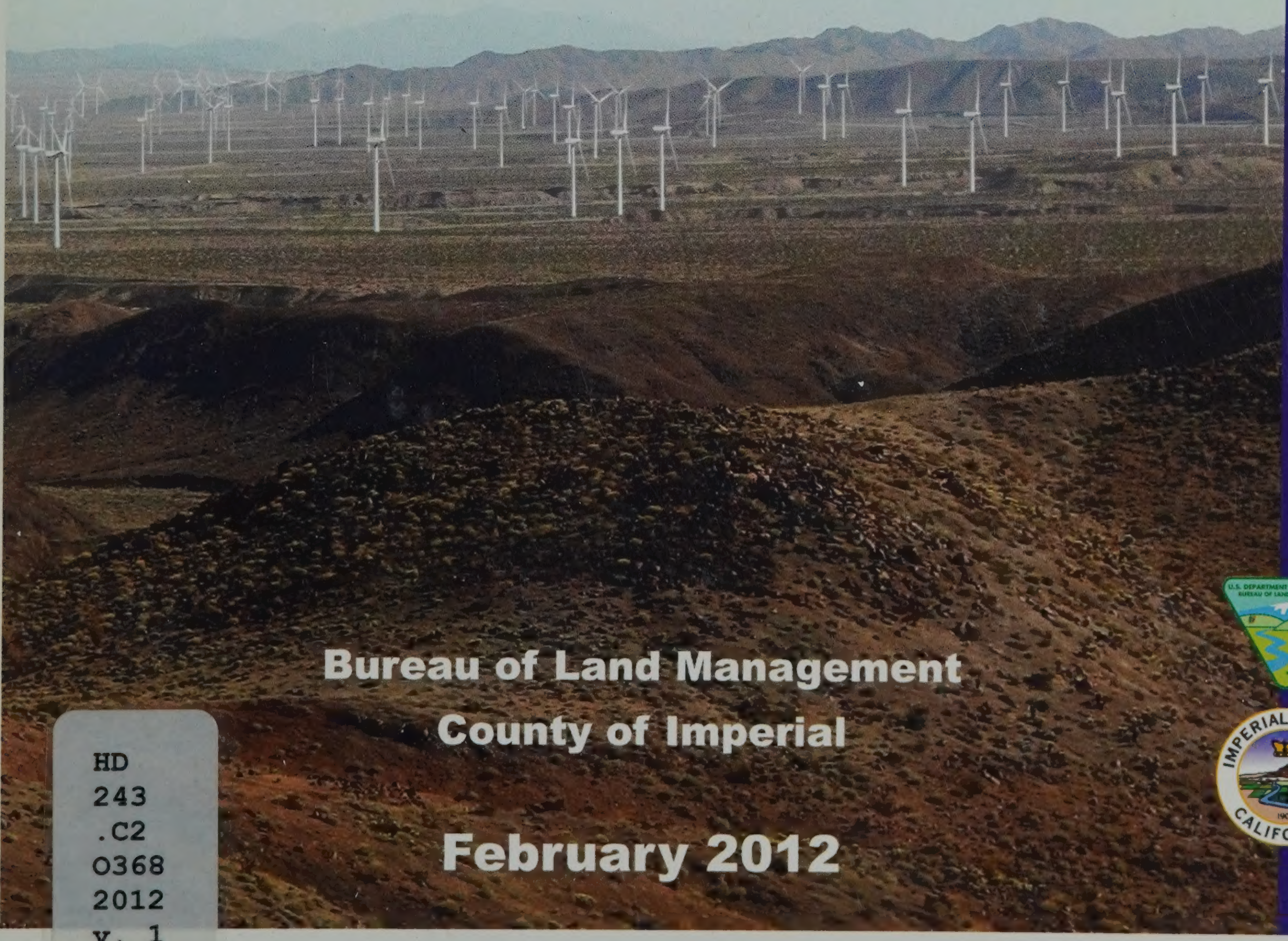
Proposed Plan Amendment
and
Final Environmental Impact Statement/ Final Environmental Impact Report

for the

Ocotillo Wind Energy Facility

Volume 1 of 7
Chapter 1 through Chapter 3



Bureau of Land Management
County of Imperial

February 2012

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United States Department of the Interior
Bureau of Land Management

Proposed Plan Amendment & Final Environmental Impact Statement/ Final Environmental Impact Report for the Ocotillo Wind Energy Facility

For the

El Centro – El Centro Field Office
El Centro, California

February 2012

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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 South 4th Street
El Centro, CA 92243-4561
www.blm.gov/ca/elcentro

In reply refer to:
CACA 51552

March 2012

Dear Reader:

Ocotillo Express, LLC (Applicant) is proposing to develop the Ocotillo Wind Energy Facility (OWEF), an up to 465-megawatt wind energy generation facility, in Imperial County, California, on lands managed by the Bureau of Land Management (BLM). In connection with Applicant's right-of-way (ROW) application for the OWEF, I am pleased to announce the availability of the Proposed Plan Amendment (PA) to the California Desert Conservation Area Plan, 1980, as amended (CDCA Plan), and Final Environmental Impact Statement (EIS)/ Environmental Impact Report (EIR) for the OWEF. The BLM prepared the Final EIS/EIR in consultation with cooperating agencies, taking into account public comments received during the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) process. The proposed decision on the PA would add the OWEF project site to those identified in the current CDCA Plan, as amended, for wind energy production. The BLM has identified its preferred alternative as the Applicant's recently proposed 112 turbine configuration, and is considering approval of the ROW grant for the Project with 112 wind turbines. Since the 112 turbine configuration was developed using a subset of the turbine locations analyzed under the existing action alternatives, the BLM has determined that the impacts associated with the installation and operation of this configuration have been disclosed and analyzed under in this EIS/EIR.

The Final EIS/EIR was prepared in accordance with the NEPA and the Federal Land Policy and Management Act (FLPMA), which establishes the land management authority of the BLM and provides guidance for how public lands are to be managed. In addition, the County of Imperial (County) has discretionary authority to issue conditional use permits for the project, and the County is a cooperating agency with BLM in the preparation of the Final EIS/EIR. Consequently, this document was also prepared in accordance with the CEQA. The County intends to use this Final EIS/EIR to provide environmental review required for its consideration of the conditional use permit application under CEQA. The Final EIS/EIR for the OWEF contains the proposed plan and project description, written comments received during the public review period for the Draft EIS/EIR, and responses to these written comments.

Pursuant to BLM's planning regulations at 43 Code of Federal Regulations (CFR) 1610.5-2, any person who participated in the planning process for the PA and has an interest that is or may be adversely affected by the proposed CDCA Plan amendment may protest such amendment within 30 days from the date the EPA publishes its NOA for the PA and Final EIS/EIR in the Federal Register. Issuance of the proposed ROW grant is an implementation decision that is not subject to protest under the BLM planning regulations.

For further information on filing a protest, please see the accompanying protest regulations in the pages that follow (Attachment I). The regulations specify the required elements in a protest. Protesting parties should take care to document all relevant facts and, as much as possible, reference or cite the planning documents or available planning records (e.g., meeting minutes or summaries, correspondence, etc.). To aid in ensuring the completeness of the protest, a protest checklist is attached to this letter (labeled as Attachment 2).

All protests must be in writing and mailed to one of the following addresses:

Regular Mail:
Director (210)
Attention: Brenda Hudgens-Williams
P.O. Box 71383
Washington, D.C. 20024-1383

Overnight Mail or Other Delivery:
Director (210)
Attention: Brenda Hudgens-Williams
20 M Street SE, Room 2134LM
Washington, D.C. 20003

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Emailed and faxed protests will not be accepted as valid protests unless the protesting party also provides the original letter by either regular or overnight mail postmarked by the close of the protest period. Under these conditions, the BLM will consider the emailed or faxed protest as an advance copy and will afford it full consideration. If you wish to provide the BLM with such advance notification, please direct faxed protests to the attention of Brenda Hudgens-Williams, BLM Protest Expeditor, at 202-912-7129, and emailed protests to Brenda Hudgens-Williams@blm.gov.

The BLM Director will make every attempt to promptly render a decision on each valid protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision of the BLM Director shall be the final decision of the Department of the Interior. Responses to protest issues will be compiled in a Director's Protest Resolution Report that will be made available to the public following issuance of the decisions.

Upon resolution of a protest, the BLM may issue a ROD adopting the Proposed PA and making a decision regarding issuance of the ROW grant for the OWEF. Copies of the ROD will be mailed or made available electronically to all who participated in this NEPA process and will be available to all parties through the "Planning" page of the BLM national website (http://www. blm.gov/planning), or by mail upon request.

Sincerely,

Margaret L. Goodro

Margaret L. Goodro
Field Manager – El Centro Field Office

Attachment 1

Protest Regulations

[CITE: 43CFR1610.5-2]

TITLE 43--PUBLIC LANDS: INTERIOR
CHAPTER II--BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR
PART 1600--PLANNING, PROGRAMMING, BUDGETING--Table of Contents
Subpart 1610--Resource Management Planning
Sec. 1610.5-2 Protest procedures.

(a) Any person who participated in the planning process and has an interest which is or may be adversely affected by the approval or amendment of a resource management plan may protest such approval or amendment. A protest may raise only those issues which were submitted for the record during the planning process.

(1) The protest shall be in writing and shall be filed with the Director. The protest shall be filed within 30 days of the date the Environmental Protection Agency published the notice of receipt of the final environmental impact statement containing the plan or amendment in the Federal Register. For an amendment not requiring the preparation of an environmental impact statement, the protest shall be filed within 30 days of the publication of the notice of its effective date.

(2) The protest shall contain:

(i) The name, mailing address, telephone number and interest of the person filing the protest;
(ii) A statement of the issue or issues being protested;
(iii) A statement of the part or parts of the plan or amendment being protested;
(iv) A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and
(v) A concise statement explaining why the State Director's decision is believed to be wrong.

(3) The Director shall promptly render a decision on the protest.

(b) The decision shall be in writing and shall set forth the reasons for the decision. The decision shall be sent to the protesting party by certified mail, return receipt requested. The decision of the Director shall be the final decision of the Department of the Interior.

Resource Management Plan Protest
Critical Item Checklist

The following items *must* be included to constitute a valid protest whether using this optional format, or a narrative letter.

(43 CFR 1610.5-2)

BLM's practice is to make comments, including names and home addresses of respondents, available for public review. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment--including your personal identifying information--may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations and businesses, will be available for public inspection in their entirety.

Resource Management Plan (RMP) or Amendment (RMPA) being protested:

Name:
Address:
Phone Number: ( )

Your interest in filing this protest (how will you be adversely affected by the approval or amendment of this plan?):

Issue or issues being protested:

Statement of the part or parts of the plan being protested:

Attach copies of all documents addressing the issue(s) that were submitted during the planning process by the protesting party, OR an indication of the date the issue(s) were discussed for the record.
Date(s):

A concise statement explaining why the State Director's decision is believed to be wrong:

El Centro Field Office
Ocotillo Wind Energy Facility
Proposed Plan Amendment & Final Environmental Impact Statement/Environmental Impact Report

NEPA & CEQA Lead Agencies:	Bureau of Land Management El Centro Field Office El Centro, California	County of Imperial Planning & Development Services El Centro, CA
Cooperating Agencies:	U.S. Department of Energy	U.S. Army Corps of Engineers
For further information, contact:	Cedric Perry, Project Manager California Desert District Office (951) 697-5388 cperry@blm.gov	Angelina Havens, Planner II Planning & Development Services (760) 482-4236 angelinahavens@co.imperial.ca.us

Abstract

This Proposed Plan Amendment (PA) and Final Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) addresses the Bureau of Land Management's (BLM) proposal to issue a right-of-way (ROW) grant to Ocotillo Express, LLC (Applicant), for the construction, operation, maintenance, and decommissioning of a utility-scale 465-megawatt (MW) wind energy facility on public and private lands in Imperial County, California.

The Proposed PA & Final EIS/EIR analyzes six alternatives: (1) the BLM would grant the Applicant a ROW for the project as proposed with 155 wind turbines; (2) the BLM would grant the Applicant a ROW for a modified project design with 137 wind turbines; (3) the BLM would grant the Applicant a ROW for a modified project design with 105 wind turbines; (4) No Action, in which the Applicant's application would be denied and current management of the site would be maintained; (5) No Project, in which the Applicant's application would be denied and the California Desert Conservation Area (CDCA) Plan would be amended to declare the site unsuitable for wind development; and (6) No Project, in which the Applicant's application would be denied and the CDCA Plan would be amended to declare the site suitable for wind development.

The Agency Preferred Alternative is referred to as the Refined Project and includes construction and operation of 112 wind turbines at the project site. The Refined Project would not result in effects that are outside the spectrum of alternatives analyzed in the EIS/EIR because the Refined Project configuration utilizes turbine sites that are already part of the existing alternatives analyzed in the EIS/EIR. Therefore, the impacts associated with the construction, operation, maintenance, and decommissioning of wind turbines at those sites are fully disclosed and analyzed in the EIS/EIR. Many of the adverse impacts associated with implementation of the project can be avoided or substantially reduced based on compliance with applicable laws, ordinances, regulations and standards, and compliance with measures provided in this Proposed PA & Final EIS/EIR.

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EXECUTIVE SUMMARY

ES.1 Background and Project Overview

This Proposed Plan Amendment (PA) and Environmental Impact Statement/Environmental Impact Report (EIS/EIR) analyzes the impacts of Ocotillo Express LLC's (Applicant) Ocotillo Wind Energy Facility (OWEF). The application for this project was filed with the Bureau of Land Management (BLM) as an Application for a Right-of-Way (ROW) authorization to construct, operate, maintain, and decommission, an approximate 12,484-acre, up to 465-megawatt (MW) wind energy project including a substation, switchyard, administration, operations and maintenance facilities, transmission, and temporary construction lay down areas (CACA, 51552). The *Regional Context* for the proposed OWEF is shown in Figure 1-1 (See Appendix A for all figures referenced in the PA and EIS/EIR). The *Proposed OWEF Site Layout* is shown in Figure 2.3-1. This Proposed PA and EIS/EIR present the potential effects of the OWEF and alternatives on BLM-administered lands and other affected lands and resources. In this analysis, six alternatives, including the proposed OWEF or Proposed Action, were developed and evaluated. These include

- The Proposed Action - 155 Wind Turbine Generators (Alternative 1);
- 137 Wind Turbine Generators Alternative (Alternative 2);
- 105 Wind Turbine Generators Alternative (Alternative 3);
- No issuance of a ROW grant or County approval/No Land Use Plan (LUP) Amendment (Alternative 4);
- No issuance of a ROW grant or County approval/Approval of a land use plan amendment to exclude wind energy development on the site of the Proposed Action (Alternative 5); and
- No issuance of ROW grant or County approval/Approval of a land use plan amendment to make site available for future wind energy development (Alternative 6).

The Applicant proposes to construct, operate, maintain, and decommission the proposed OWEF in Imperial County, California, near the unincorporated community of Ocotillo. The project would be located on BLM-administered land except for approximately 500 acres of private and public land outside the project boundaries would be utilized for road access and collection line ROWs.

Proposed Action (Alternative 1)

The proposed OWEF (Alternative 1) consists of the construction, operation, maintenance, and decommissioning of wind turbine generators (WTGs) and associated facilities necessary to successfully generate up to 465 MW of electrical energy. A proposed total of 155 WTGs would be located on the project site. After construction of all WTGs, the project would produce up to 465 MW of energy.

The proposed OWEF site consists of two site areas: the main northwestern site (Site 1) with an approximate acreage of 11,269 and the smaller southeastern site (Site 2) with an approximate acreage of 1,167. The Sunrise Powerlink 500-kV transmission line crosses the proposed OWEF site, facilitating interconnection of the proposed OWEF and transmission of its renewable energy output to key load centers in southern California.

ES.2 Purpose and Need

National Environmental Policy Act (NEPA) Regulations published by the Council on Environmental Quality (CEQ) state that environmental impact statements' Purpose and Need section "shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action" (40 CFR §1502.13). The following discussion sets forth the purpose of and need for the action as required under NEPA.

ES.2.1 BLM Purpose

In accordance with Federal Land Policy and Management Act (FLPMA) (Section 103(c)), public lands are to be managed for multiple use that takes into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant ROWs on public lands for systems of generation, transmission, and distribution of electric energy (Section 501(a)(4)). Taking into account the BLM's multiple use mandate, the purpose and need for the Proposed Action is to respond to a FLPMA ROW application submitted by the Applicant to construct, operate, maintain, and decommission a wind energy-generating facility and associated infrastructure on public lands administered by the BLM in compliance with FLPMA, BLM ROW regulations, and other applicable Federal laws and policies.

The proposed action would, if approved, assist the BLM in addressing the following management objectives:

- Executive Order 13212, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "production and transmission of energy in a safe and environmentally sound manner."
- The Energy Policy Act 2005 (EPAct 05), which sets forth the "sense of Congress" that the Secretary of the Interior should seek to have approved non-hydropower renewable energy projects on the public lands with a generation capacity of at least 10,000 MW by 2015.
- Secretarial Order 3285A1, dated March 11, 2009, and amended on February 22, 2010, which "establishes the development of renewable energy as a priority for the Department of the Interior."

This proposed action, if approved, would also further the development of environmentally responsible renewable energy as a priority for the Department of the Interior. The BLM will decide whether to deny the proposed ROW, grant the ROW, or grant the ROW with modifications.

In connection with its decision on the OWEF, the BLM's action will also include consideration of potential amendments to the CDCA. The CDCA, while recognizing the potential compatibility of wind energy facilities on public lands, requires that all sites associated with power generation or transmission not identified in that plan be considered through the land use plan amendment process. If the BLM decides to approve the issuance of a ROW grant, the BLM will also amend the CDCA as required.

ES.2.2 U.S. Army Corps of Engineers Draft Section 404(b)(1) Alternatives Analysis Basic and Overall Project Purpose

The U.S. Army Corps of Engineers (ACOE) is a cooperating agency with the BLM on this Draft EIS/EIR. The Federal Clean Water Act (CWA) Section 404(b)(1) Guidelines (Guidelines) promulgated by the U.S. Environmental Protection Agency (EPA) explain that, when an action is subject to NEPA and the ACOE is the permitting agency, the analysis of alternatives prepared for NEPA will in most cases provide the information needed for analysis under the Guidelines. The Guidelines also state that, in some cases, the NEPA document may have addressed "...a broader range of alternatives than required to be considered under [the Guidelines] or may not have considered alternatives in sufficient detail to respond to the details of these Guidelines. In the latter case, it may be necessary to supplement these NEPA documents with this additional information." (40 CFR 230.10(a)(4)). In light of this statement in the Guidelines and because the project purpose statement under NEPA and the Guidelines are not necessarily identical, the ACOE has reviewed and refined the project purpose to ensure it meets the standards of the Guidelines.

For CWA Section 404 purposes, the ACOE's Draft Section 404(b)(1) Alternatives Analysis for the proposed OWEF provides the following statement of basic and overall project purpose:

> The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed action, and is used by the Corps to determine whether an applicant's project is water dependent (i.e., whether it requires access or proximity to or siting within waters of the U.S.). The basic project purpose for the proposed action is "Energy Production." The basic project purpose is not water dependent. The discharge of fill material is not proposed to occur in any special aquatic sites in the project area. Therefore, the rebuttable presumptions that there are less environmentally damaging alternatives for the proposed activity that do not affect special aquatic sites does not apply [40 CFR 230.10(a)(3)].

The overall project purpose is "To provide a wind energy facility ranging in size from approximately 315 MW to 465 MW in Imperial County, California."

ES.2.3 Applicant's Objectives

The Applicant's fundamental objective for the Proposed Action is to construct, operate, maintain, and eventually decommission an up to 465-MW wind energy facility and associated interconnection transmission infrastructure to provide renewable electric power to California's existing transmission grid to help meet federal and state renewable energy supply and greenhouse gas (GHG) emissions reduction requirements. The Applicant's specific objectives for the project are:

- To construct and operate a cost competitive up to 465-MW wind energy facility to provide a renewable and reliable source of power to California's investor-owned utilities (IOU);
- To locate the project on contiguous lands with high wind potential to maximize operational efficiency while minimizing environmental impacts and water use;
- To minimize environmental impacts and land disturbance by locating the project near existing transmission infrastructure and roads and by avoiding sensitive environmental areas, recreational resources and wildlife habitats (e.g., Desert Wildlife Management Areas, Areas of Critical Environmental Concern);
- To develop a source of renewable electric power that can be placed into service in an expeditious manner by interconnecting to San Diego Gas and Electric's (SDG&E) Sunrise Powerlink 500-kV transmission line; and
- To assist California and its IOUs in meeting the State's Renewables Portfolio Standard (RPS) and GHG emissions reduction requirements, including the requirements set forth in Senate Bill (SB) 1078 (California RPS Program), Assembly Bill (AB) 32 (California Global Warming Solutions Act of

2006), and the Governor's Executive Order S-14-08[1] to increase the state's Renewable Energy Standard to 33 percent renewable power by 2020. In particular:

- California's RPS mandate that requires the State's IOUs to supply 20 percent of California's total electricity through renewable energy generation by 2010, as set forth in Senate Bill (SB) 1078 (2001-2002 Reg. Sess.) (establishing the California RPS Program) and SB 107 (2005-2006 Reg. Sess.) (accelerating the 20 percent requirement to 2010).
- California's GHG emission reduction goals set forth in AB 32 that requires the State's GHG emissions be reduced to 1990 levels by 2020.

ES.2.4 CEQA Objectives

The overall intent of the proposed OWEF is to promote the use of renewable energy to provide energy to local and statewide utility customers. The following objectives reflect the objectives for the OWEF:

- Provide energy from the Proposed Action to help meet California's Renewable Portfolio Standard (RPS) requirement for renewable energy;
- Develop a wind energy project on the windiest sites available to maximize energy production and provide the lowest-cost renewable, non-polluting electricity;
- Incorporate the BLM's Best Management Practices (BMPs) for developing wind energy and ensuring minimal environmental impacts.

ES.3 Decisions to be Made

As defined by the purpose and need, the BLM is responding to the Applicant's application for a ROW grant to construct, operate, maintain, and decommission a wind energy facility on public lands. In doing so, the BLM will adopt one of the alternatives described below or a variant similar to one of the alternatives (see Section ES.3.1).

Alternatives considered in the EIS/EIR are based on issues identified by the BLM and on comments received during the public scoping process. The BLM is required to consider a range of alternatives that are considered "reasonable," usually defined as alternatives that are realistic (not speculative), technologically and economically feasible, and responsive to the purpose and need of the project. The EIS/EIR also needs to consider a "no action" or "no project" alternative.

This document provides information to the authorized officer to make the following decisions:

- Should the application area remain undesignated or be designated as suitable or unsuitable for wind energy development?
- If the BLM designates the area as suitable for wind energy development, it would decide:
    - Should the proposed ROW grant be issued as applied for, issued for a modified project, or denied?
    - If the BLM decides to approve the issuance of a ROW grant, the BLM will also amend the CDCA as required.

Similarly, the County of Imperial must respond to the applications submitted by the Applicant. In rendering a decision whether to approve the proposed project and issue the necessary permits to construct and operate the OWEF, the County must determine whether the project is consistent with the policies of the Imperial County General Plan and conforms to applicable regulations and standards set forth in County ordinances. The County must also make findings pursuant to CEQA that the project's impacts on the physical environment have been mitigated to the degree feasible.

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[1] The RPS standard for 33 percent of energy from renewable sources by 2020 was enacted by law with the passage of SB X1-2, which was signed by Governor Brown on April 12, 2011.

ES.3.1 Alternatives

Alternatives were evaluated for inclusion in the EIS/EIR using appropriate screening criteria pursuant to NEPA and CEQA. These criteria were used to evaluate whether a potential alternative would: achieve the project purpose and meet most project objectives; be feasible; and offer environmental advantages over the proposed project, including avoidance or reduction of significant environmental impacts. As part of the alternatives screening process, twenty (20) alternatives located on BLM-administered lands and other affected lands and resources were evaluated. Of those alternatives, six alternatives, including the proposed OWEF or Proposed Action, were developed and evaluated in this EIR/EIS, as follows (see Chapter 2 for complete descriptions of these alternatives):

- **Proposed Action - 155 Wind Turbine Generators (Alternative 1).** This alternative consists of 155 WTGs designed to produce up to 465 MW of energy. The proposed OWEF would be constructed at both the northern site (Site 1) and southern site (Site 2) in a single phase.
- **137 Wind Turbine Generators Alternative (Alternative 2).** This alternative is conceptually similar to Alternative 1, but with 18 fewer WTGs (137 total), with five optional turbine sites. These turbines would be 2.3-MW WTGs, which would meet the Power Purchase Agreement amount of 315 MW. The locations of the substation, switchyard, O&M facility, batch plant, rail yard, and MET towers are the same as Alternative 1.
- **105 Wind Turbine Generators Alternative (Alternative 3).** This alternative is conceptually similar to Alternative 1, but with 50 fewer WTGs (105 total). These turbines would be 3.0-MW WTGs to meet the Power Purchase Agreement amount of 315 MW. In addition, the MET tower on Site 2 would be eliminated. The locations of the substation, switchyard, O&M facility, batch plant, rail yard, and remaining MET towers are the same as Alternative 1.
- **No issuance of a right-of-way grant or County approval; No LUP Amendment (Alternative 4).** Under this No Action Alternative none of the project components would be built. This alternative is equivalent to the No Project Alternative under CEQA.
- **No issuance of a right-of-way grant or County approval; approval of a land use plan amendment to exclude wind energy development on the site of the Proposed Action (Alternative 5).** Under this No Project Alternative none of the project components would be built, but there would be an amendment to the CDCA Plan that would identify the project site as unsuitable for wind energy development.
- **No issuance of right-of-way grant or County approval; approval of a land use plan amendment to make site available for future wind energy development (Alternative 6).** Under this No Project Alternative none of the project components would be built, but there would be an amendment to the CDCA Plan that would identify the project site as suitable for wind energy development.

It is possible that not all of the wind turbine locations analyzed as part of Alternatives 1, 2, and 3, above, will be approved. The Record of Decision to be issued by the BLM may result in either the denial or approval of the proposed project, but could also result in the approval of a different number of wind turbines than described in Alternatives 1, 2, or 3, provided that the approved configuration is within the range of alternatives analyzed in this Final EIS/EIR. Based on information developed during the Section

106 process for the OWEF and comments received on the Draft EIS/EIR, the Applicant proposed that BLM consider a new project configuration that eliminates 43 of the turbines proposed under Alternative 1 in order to further reduce the effects of the OWEF on cultural resources ("Refined Project"). Under the Refined Project configuration, only 112 wind turbines generators would be approved and installed, and those 112 turbines would be located on turbine sites selected from a pool comprised of only 118 of the 155 turbines sites evaluated under Alternative 1 (i.e., 112 installation sites plus 6 alternate sites). These changes would result in a project similar in size to Alternative 3. A map of the proposed 112 wind turbine configuration, plus the 6 alternative turbine sites can be seen on Figure 2.1-6 in Appendix A. As explained below, the BLM determined that this new configuration did not require a new alternative to be analyzed in this EIS/EIR because the 112-turbine configuration simply represents a subset of the turbine sites already presented and analyzed by the BLM in the Draft EIS/EIR and, therefore, the impacts associated with the installation and operation of wind turbines at those sites have already been disclosed and analyzed this EIS/EIR.

ES.3.2 Comparison of Alternatives

Table ES-1 summarizes the alternatives and their impacts. The selection of one of the three action alternatives (Alternatives 1, 2, and 3) would result in amendment of the CDCA Plan to determine the suitability of the site for the development of a wind energy project. However, the actual environmental consequences anticipated would result from the development of the Proposed Action; therefore, the table summarizes environmental impacts resulting from the project pursuant to NEPA and CEQA (Guidelines Section 15123(b)(1)).

ES.3.3 Federal Lead Agency Preferred Alternative and CEQA Environmentally Superior Alternative

ES.3.3.1 Federal Lead Agency Preferred Alternative

The "preferred alternative" is a preliminary indication of the federal responsible official's preference of action, which is chosen from among the Proposed Action and alternatives. The preferred alternative may be selected for a variety of reasons (such as the priorities of the particular lead agency) in addition to the environmental considerations discussed in the EIS.

In accordance with NEPA (40 CFR 1502.14(e)), the BLM has identified its preferred alternative as the Refined Project. The BLM has determined that the Refined Project would not result in effects that are outside the spectrum of alternatives analyzed in the Draft EIS/EIR because the Refined Project configuration utilizes turbine sites that are already part of the existing alternatives analyzed in the Draft EIS/EIR with respect to Alternative 1, the Proposed Action. Therefore, the impacts associated with the construction, operation, maintenance, and decommissioning of wind turbines at those sites have already been fully disclosed and analyzed in the Draft EIS/EIR. Thus, the Refined Project is merely a reduction in scope and impact version of Alternative 1. Moreover, given its size, the impacts associated with the Refined Project (112 turbines) are similar to, or only slightly larger than, the impacts identified for Alternative 3 (105 turbines). As explained above, the Refined Project would further avoid direct impacts to identified cultural resources within the OWEF project site. The BLM has determined based on these considerations that the Refined Project does not constitute a "substantial change] in the [P]roposed

[A]ction … relevant to environmental concerns" or significant new information bearing on the Proposed Action or its alternatives. (40 CFR 1502.9(c)(1), (2)).

ES.3.3.2 CEQA Environmentally Superior Alternative

In accordance with CEQA requirements, an "environmentally superior alternative" must be identified among the alternatives analyzed in an EIR or EIS/EIR. The environmentally superior alternative is the alternative found to have an overall environmental advantage compared to the other alternatives based on the impact analysis in the EIR. If the environmentally superior alternative is the No Project alternative, State CEQA Guidelines Section 15126.6(e)(2) requires the EIR to identify an environmentally superior alternative from among the other alternatives.

In the case of the Proposed Action, the No Project alternative would be superior to any of the action alternatives because the impacts of implementing the Proposed Action would be avoided for the time being. Among the other alternatives, the County of Imperial has identified Alternative 3 (105 Wind Turbine Generators) as the environmentally superior alternative because it would involve installation of the fewest number of turbines and, therefore, would result in the least environmental disturbance. Consequently, Alternative 3 would have the smallest impact on natural habitat and the lowest potential for disturbing cultural and paleontological resources. It would also generate the least amount of air pollutants during construction and would require the least amount of water for construction. Visual and noise impacts would also be reduced due to the fewer number of turbines compared to the other action alternatives. While physical impacts on the environment at the project site would be reduced with Alternative 3, this alternative would not fully meet the project's objectives as it would only enable the generation of approximately 315 MW of wind energy rather than the 465 MW sought by the Applicant. Also, while the reduced number of turbines associated with Alternative 3 would reduce direct project impacts, the environmental benefits associated with the generation of electricity from renewable resources would be reduced compared to Alternative 1. It should also be noted that the suitability of 3.0-MW turbines for this site, as well as the commercial availability of these turbines, could hinder the implementation of this alternative.

ES.4 Connected/Cumulative Actions

There are no other actions that are connected to the OWEF that would require any action from the BLM or County of Imperial. The Sunrise Powerlink transmission line, to which the proposed OWEF would connect, has already been approved and is currently under construction. The Sunrise Powerlink project was considered in the cumulative impact analysis in this EIS/EIR and, similarly, the cumulative impact analysis in Sunrise Powerlink EIS/EIR considered the impacts of the proposed project and other reasonably foreseeable renewable energy projects in region.

There are a large number of renewable energy and other projects proposed throughout the California desert that were identified as potentially contributing to cumulative environmental impacts. Those cumulative projects are discussed in detail in Section 4.1.5, Cumulative Scenario Approach, along with other types of reasonably foreseeable projects.

ES.5 Environmental Consequences

ES.5.1 Impact Summary Table

Table ES-1 summarizes the environmental impacts that would occur as a result of the OWEF and Alternatives by environmental parameter. Appendix I, Mitigation Monitoring Program, identifies the mitigation measures included to avoid or substantially reduce adverse impacts. The unavoidable adverse impacts that would remain after mitigation are also discussed at the end of each section in Chapter 4.

ES.5.2 Major Conclusions

The proposed OWEF (Proposed Action) would result in unavoidable adverse impacts even after implementation of mitigation measures for the following issue areas, as described below.

Air Quality. Air pollutant emissions during construction would result in temporary and unavoidable adverse NOx and PM10 impacts.

Cultural Resources. All of the alternatives would have an adverse impact to the setting of the resources that are contributors to the Traditional Cultural Property identified by certain tribes during Section 106 consultations for the OWEF. Project redesign and the implementation of the proposed mitigation measures may reduce some of these impacts, but in general they are thought to be unavoidable.

Noise. Operation of the wind turbines at night would result in a substantial increase over ambient noise levels and in the quieter areas (away from highways) would be perceived as a doubling of loudness such that operation of the wind turbines would result in an unavoidable adverse impact.

Paleontological Resources. Inadvertent damage could occur during excavation to paleontological resources not identified by paleontological monitors.

Vegetation Resources. Temporary disturbance and permanent loss of sensitive vegetation communities, jurisdictional areas, and special status plant species.

Visual Resources. Unavoidable impacts from the conversion of a natural desert landscape to a landscape dominated by industrial character. Long-term land scarring following project decommissioning due to the large impact area and long recovery time for desert vegetation.

Wildlife Resources. Temporary disturbance and permanent loss of suitable (unoccupied) peninsular bighorn sheep habitat, burrowing owl burrows and foraging habitat, special status raptor and migratory bird species (collision), and special status bat species due to collision. Alternatives 1 and 2 would also result in temporary and permanent unavoidable impacts to flat-tailed horned lizard.

Table ES-1. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude on-site wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future on-site wind development
Air Resources	Temporary unavoidable adverse impacts during construction. Daily construction NOx and PM10 emissions exceed ICAPCD thresholds. Operation emissions below the ICAPCD thresholds for all criteria pollutants.	Lower annual/total construction emissions and O&M emissions than Alternative 1 due to reduced number of wind turbines.	Lower annual/total construction emissions and O&M emissions than those of Alternatives 1 and 2 due to reduced number of wind turbines.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: Air pollutant emissions during construction would result in temporary and unavoidable adverse NOx and PM10 impacts. (Alternatives 1, 2, & 3)					
Global Climate Change	Off-setting reductions in GHG emissions are greater than the direct emissions from construction and operation of the project.	Off-setting reductions in GHG emissions are less compared to Alternative 1 due to reduced number of WTGs.	Off-setting reductions in GHG are less compared to Alternatives 1 and 2 due to reduced number of WTGs.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: None.					
Cultural Resources	Avoidance of adverse physical impacts to prehistoric resources, historic resources, multi-component resources, and built-environment through project redesign and mitigation. Under NEPA, adverse impacts to the setting of a significant TCP/ historic district and contributing prehistoric resources assumed eligible for the National Register of Historic Places resulting from the conversion of a natural desert landscape to an industrial landscape. Under CEQA, the County has determined that the project	Avoidance of adverse physical impacts to prehistoric resources, historic resources, multi-component resources, and built environment through project redesign and mitigation. Under NEPA, adverse impacts to the setting of a TCP and contributing prehistoric resources assumed eligible for the National Register of Historic Places resulting from the conversion of a natural desert landscape to an industrial landscape. Under CEQA, the County has determined that the project site not a historic resource.	Avoidance of adverse physical impacts to prehistoric resources, historic resources, multi-component resources, and built-environment through project redesign and mitigation. Under NEPA, impacts to the setting of a TCP and contributing prehistoric resources assumed eligible for the National Register of Historic Places resulting from the conversion of a natural desert landscape to an industrial landscape. Under CEQA, the County has determined that the project site is not a historic resource. Reduced potential	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table ES-1. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude on-site wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future on-site wind development
	site is not a historic resource.	Reduced potential for unanticipated discoveries of cultural resources for Alternative 2 relative to the reduction in the construction and O&M footprint compared to Alternative 1.	for unanticipated discoveries of cultural resources for Alternative 3 relative to the reduction in the construction and O&M footprint compared to Alternatives 1 & 2.			
	Unavoidable Adverse Impacts: Under NEPA, construction and O&M activities would result in permanent unavoidable adverse impacts to the setting of an identified TCP assumed to be eligible for the National Register of Historic Places as a result of the conversion of a natural desert landscape to a landscape dominated by industrial character (Alts. 1, 2, & 3). Under CEQA, as in the Draft EIR, adverse impacts to historic viewsheds and indirect impacts to cultural resources would be unavoidable.					
Environmental Justice	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
	Unavoidable Adverse Impacts: None.					
Lands and Realty	Potential conflicts with existing land uses during construction and decommissioning. A General Plan Amendment (GPA), a zone change, and a conditional use permit (CUP) would be required.	Similar to Alternative 1; except construction would be completed in a single phase so the duration of impacts to existing land uses would occur over a shorter period of time.	Similar to Alternative 1; except construction would be completed in a single phase so the duration of impacts to would occur over a shorter period of time. No turbines would be constructed on private land; therefore, a GPA, zone change, and CUP would not be required.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: None.					
Mineral Resources	Sand and gravel required for access roads and concrete manufacturing. Existing local mineral operations may experience temporary access restrictions associated with transport trips.	Slightly less sand/gravel required than Alternative 1 due to the construction of 18 fewer wind turbines. Temporary access restrictions to existing mineral operations would be slightly less because less material would be needed.	Less sand/gravel required due to the construction of fewer wind turbines than Alternatives 1 & 2. Potential temporary access restrictions to existing mineral operations would be less than Alternatives 1 & 2 because less material would be needed.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: None.					
Multiple Use Classes	No Impact	No Impact	No Impact	No impact.	No impact.	No impact.
	Unavoidable Adverse Impacts: None.					

Table ES-1. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude on-site wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future on-site wind development
Noise	Short-term elevated noise levels on site and along traffic routes during construction and decommissioning. Noise level at nearest residence from on-site construction or decommissioning of 51 dBA Leq (1-hr). Operational noise from WTGs would be 43.1 dBA Leq at the nearest sensitive receptor. Majority of Ocotillo would experience noise levels from turbines between 35-40 dBA Leq. Nomirage would experience between 30-35 dBA Leq. More intensive O&M activities resulting in short-term elevated noise levels of 47 dBA Leq (1-hr) at the nearest residence could occur during project operation, but such activities would be of limited duration.	Construction and decommissioning noise impacts the same as Alternative 1, but would occur for a shorter period. Operational noise from the WTGs would be 42.9 dBA Leq at the nearest receptor. O&M impacts would be identical to Alternative 1.	Construction and decommissioning noise levels at the nearest residence would decrease from 51 dBA Leq (1-hr) for Alternative 1 to 49 dBA Leq (1-hr). Operational noise from the WTGs would be 38.0 dBA Leq at the nearest receptor. Majority of Ocotillo would experience noise levels from wind turbines of less than 35 dBA Leq. Nomirage would not be affected. O&M impacts would be slightly less than Alternative 1 resulting in noise levels of 45 dBA Leq (1-hr) at the nearest residence.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: Operation of the wind turbines at night would result in a substantial increase over ambient noise levels and in the quieter areas (away from highways) would be perceived as a doubling of loudness such that operation of the wind turbines would result in an unavoidable adverse impact. (Alternatives 1 & 2)					
Paleontological Resources	Potential damage or destruction of unknown scientifically significant paleontological resources. 640.0 ac. disturbed with low potential. 23.9 ac. disturbed with moderate potential.	Potential damage or destruction of unknown scientifically significant paleontological resources. 598.7 ac. disturbed with low potential. 17.6 ac. disturbed with moderate potential.	Potential damage or destruction of unknown scientifically significant paleontological resources. 493.2 ac. disturbed with low potential. 2.6 ac. disturbed with moderate potential.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table ES-1. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude on-site wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future on-site wind development
	Unavoidable Adverse Impacts: Inadvertent damage could occur during excavation to paleontological resources not identified by paleontological monitors. (Alternatives 1, 2, & 3)					
Public Health and Safety	Potential safety hazards to aircraft operations. Potential structure damage from seismic hazards. Potential temporary hazards during construction from release of hazardous materials and disruption to emergency access.	Similar to Alternative 1; however, the reduced number of turbines would slightly reduce potential hazards.	Similar to Alternative 1; however, the reduced number of turbines would reduce potential hazards.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: Although unlikely, it is possible that an accidental hazardous material release could occur and create a risk to the human and/or natural environment. (Alternatives 1, 2, & 3)					
Recreation	Temporary disruption to on-site recreation activities during construction. Permitted recreation activities would resume after construction is completed.	Similar to Alternative 1; however, fewer recreation areas would be disrupted during construction.	Similar to Alternative 1; however, less recreation areas would be disrupted during construction.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: None.					
Social and Economic Issues	Employment of 246 workers during construction, 27 during operation. No new housing induced. Worker spending beneficial to local business revenues. Effects on property value smaller in comparison to other relevant factors and would diminish with time.	Similar to Alternative 1 but reduced proportionate to number of WTGs installed.	Similar to Alternative 1 but reduced proportionate to number of WTGs installed.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: None.					

Table ES-1. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude on-site wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future on-site wind development
Soil Resources	Earth-disturbing activities could result in erosion and loss of topsoil.	Potential soil erosion and loss of topsoil would be slightly less than Alternative 1, due to the construction of fewer turbines.	Potential soil erosion and loss of topsoil would be less than Alternative 1, due to the construction of 50 fewer turbines.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: None.					
Special Designations	Temporary disturbance from air pollutants and noise. Temporary and permanent degradation from visual changes.	Same as Alternative 1.	Same as Alternative 1.	No impacts	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: None.					
Transportation and Public Access	No substantial change in intersection or street segment operation during construction, O&M, or decommissioning. Two intersections would temporarily change Level of Service (LOS) levels from LOS A to LOS B during construction.	Same as Alternative 1.	Same as Alternative 1.	No impacts	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: None.					
Vegetation Resources	Direct impacts to 664.1 ac. of vegetation communities (80.4 ac. of sensitive communities and 583.7 ac. of non-sensitive communities). Direct impacts include 483.1 ac. of temp. impacts and 181 ac. of perm. impacts. Direct impacts to 80,558 special status plants (six different species) during construction.	Direct impacts to 616.5 ac. of vegetation communities (75.5 ac. of sensitive communities and 541.0 ac. of non-sensitive communities). Direct impacts include 447.0 ac. of temp. impacts and 169.5 ac. of perm. impacts. Direct impacts to 36,698 special status plants (five different species) during construction.	Direct impacts to 496.0 ac. of vegetation communities (63.0 ac. of sensitive communities and 433.0 ac. of non-sensitive communities). Direct impacts include 355.2 ac. of temp. impacts and 140.8 ac. of perm. impacts. Direct impacts to 1,465 special status plants (three different species) during construction.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table ES-1. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude on-site wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future on-site wind development
	Indirect impacts to sensitive vegetation communities and special status plant species would include fugitive dust and introduction and/or spread of invasive weeds.	Indirect impacts expected to be similar to and slightly less than Alternative 1.	Reduced level of indirect impacts to vegetation resources and special status plant species as compared to Alternatives 1 & 2.			
	Unavoidable Adverse Impacts: Construction and O&M activities would result in temporary and permanent unavoidable impacts to sensitive vegetation communities and special status plant species. (Alternatives 1, 2, and 3)					
Aquatic Resources (Federal and State Jurisdictional Areas)	Direct impacts to 5.57 ac. of ACOE-jurisdictional areas (all impacts are to non-wetland Waters of the US). Direct impacts to 23.20 ac. of CDFG jurisdictional areas, including 18.73 ac. of vegetated communities and 4.47 acres of unvegetated streambed. Indirect impacts would include spread of fugitive dust and introduction and/or spread of invasive weeds.	Direct impacts to 5.31 ac. of ACOE-jurisdictional areas (all impacts are to non-wetland Waters of the US). Direct impacts to 20.71 ac. of CDFG jurisdictional areas, including 16.41 ac. of vegetated communities and 4.30 ac. of unvegetated streambed. Indirect impacts would be similar to and slightly less than Alternative 1.	Direct impacts to 3.61 ac. of ACOE-jurisdictional areas (all impacts are to non-wetland Waters of the US). Direct impacts to 10.71 ac. of CDFG jurisdictional areas, including 7.65 ac. of vegetated communities and 3.06 ac. of unvegetated streambed. Reduced level of indirect impacts to jurisdictional areas as compared to Alternatives 1 & 2.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: Construction and O&M activities would result in temporary and permanent unavoidable impacts to jurisdictional areas. (Alternatives 1, 2, and 3)					
Visual Resources	Conversion of a natural desert landscape to a landscape dominated by industrial character. Long-term land scarring following project removal due to the large impact area, and slow recovery of vegetation.	Similar to Alternative 1.	Similar to Alternative 1, except Alternative 3 would eliminate visual impacts in the NE corner of Site 1 (reducing impacts to residents of Ocotillo and travelers on S2. Also eliminates visual impacts at Site 2 (reducing impacts residents of Nomirage and Ocotillo) and travelers on SR 98 and I-8. The sense of structural proliferation would be	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table ES-1. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude on-site wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future on-site wind development
			reduced by limiting turbines to the north side of I-8.			
	Unavoidable Adverse Impacts: Adverse and unavoidable impacts from the conversion of a natural desert landscape to a landscape dominated by industrial character. Long-term land scarring following project decommissioning due to the large impact area and long recovery time for desert vegetation. (Alternatives 1, 2, and 3)					
Water Resources	Possible temporary overdraft and/or drawdown conditions could occur at groundwater wells near the Pine Valley supply well, if this is the source of water to be used for project construction, operation, and/or decommissioning. Earth-disturbing activities would alter site-specific drainage patterns and could temporarily degrade surface water quality as a result of erosion and sedimentation.	Proportionately less water during construction for concrete manufacturing and access road improvements (including dust control), resulting in a marginally lower potential than Alternative 1 to result in temporary overdraft and/or drawdown. Slightly fewer jurisdictional drainages affected due to fewer road crossings than Alternative 1.	Proportionately less quantity of water would be required for concrete manufacturing and access road improvements than Alternatives 1 & 2. Fewer jurisdictional drainages affected due to fewer road crossings than Alternatives 1 & 2. Avoids drainage pattern alterations and potential flooding impacts on Site 2 and NE portion of Site 1.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: None.					
Wildland Fire Ecology	Moderate potential for a wildfire during construction or decommissioning due to moderately risky site conditions and climate. Wildfire ignition possible if WTG rotor blades spin out of control. Lightning strikes could create power surges resulting in a fire. Low probability of a wildfire during operations due to site conditions and proposed activities; however, a wildfire could result in destruction of property, loss of life, and	Slightly less potential for a wildfire during construction and decommissioning than Alternative 1, as activities would be reduced. Slightly less potential for a wildfire during O&M than Alternative 1, as activities would be slightly reduced and there would be fewer WTGs that could potentially start a fire.	Less potential for a wildfire during construction and decommissioning than Alternatives 1 & 2, as activities would be reduced. Less potential for a wildfire during O&M than Alternatives 1 & 2, as activities would be reduced and there would be fewer WTGs that could potentially start a fire.	No impact.	No impact,	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table ES-1. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude on-site wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future on-site wind development
	damage to natural resources.					
	Unavoidable Adverse Impacts: None.					
Wildlife Resources	Direct impacts to 173.4 ac. of USFWS Essential Habitat for PBS, 137.4 ac. of FTHL-occupied habitat, 4 occupied burrowing owl burrows and 26 ac. of burrowing owl foraging habitat during construction. Indirect impacts would include spread of fugitive dust, use of night lighting, and introduction and/or spread of invasive weed species during construction and O&M. O&M activities would result in bird and bat collisions with wind turbines. O&M activities could result in disturbance to occupied FTHL habitat in the north-east portion of Site 1 and 3 PBS lambing areas in the I-8 Island.	Direct impacts to 161.1 ac. of USFWS Essential Habitat for PBS, 123.5 ac. of FTHL-occupied habitat, 4 occupied burrowing owl burrows and 26 ac. of burrowing owl foraging habitat during construction. Indirect impacts would be similar to and slightly less than Alternative 1. O&M activities would result in the same types of impacts to bird and bat species due to collision with wind turbines, but the collision risk is slightly reduced due to 18 fewer wind turbines. O&M activities could result in disturbance to 3 PBS lambing areas in the I-8 Island and occupied FTHL habitat in the northeast portion of Site 1.	Direct impacts to 148.3 ac. of USFWS Essential Habitat for PBS, 50.1 ac. of FTHL-assumed-occupied habitat, 4 occupied burrowing owl burrows and 26 ac. of burrowing owl foraging habitat during construction. Indirect impacts would be similar to and slightly less than Alternative 1. Bird and bat collision risk slightly reduced due to 50 fewer wind turbines. Indirect impacts to FTHL-occupied habitat reduced compared to Alternatives 1 & 2. O&M activities could result in disturbance to 3 PBS lambing areas in the I-8 Island and assumed-occupied FTHL habitat in the northeast portion of Site 1.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
	Unavoidable Adverse Impacts: Construction and O&M activities would result in temporary and permanent unavoidable impacts to suitable (unoccupied) PBS habitat, burrowing owl burrows and foraging habitat, special status raptor and migratory bird species (collision), and special status bat species due to collision (Alternatives 1, 2, and 3). Alternatives 1 and 2 would also result in temporary and permanent unavoidable impacts to flat-tailed horned lizard.					

The EIS/EIR analysis of the OWEF includes the proposed utility switchyard and loop-in to connect to the Sunrise Powerlink (SPL). As the CEQA Lead Agency, Imperial County has determined that no significant unavoidable impacts would be caused by these proposed facilities when constructed and operated in compliance with the provision set forth in the Final EIS/EIR. Standard Best Management Practices (BMPs), including operational protocols required by the SDG&E Subregional Natural Community Conservation Plan (NCCP) would apply to construction, operation, and maintenance of the utility switchyard and SPL loop-in (see Final EIS/EIR Section 2.1.3.6, SDG&E Best Management Practices). These BMPs include environmentally sensitive construction, including operation and maintenance techniques that reduce impacts to biological resources and prevent environmental degradation. Further, the utility switchyard and SPL loop-in would not result in any significant unavoidable impacts as described below:

- **Air Quality.** The utility switchyard and SPL loop-in comprise a small portion of the overall OWEF project – approximately 21 acres of the total of 196 acres of permanent disturbance for the overall project (Alternative 1). The temporary air pollutant emissions associated with construction of the utility switchyard and SPL loop-in would not exceed significance thresholds and operational emissions would be minimal.
- **Cultural Resources.** No archaeological or historical resources are located at the site of the utility switchyard and SPL loop-in. Although the OWEF site is located in an area considered eligible as a Traditional Cultural Property, the utility switchyard and SPL loop-in would be located adjacent to an existing transmission corridor and would not substantially change the cultural characteristics of the area.
- **Noise.** The utility switchyard and SPL loop-in are not located in close proximity to any sensitive receptors and operational noise would be well below background noise levels at that distance. Similarly, temporary construction-related noise also would not be significant based on the distance to sensitive receptors.
- **Paleontological Resources.** While the project site contains geologic formations with a Moderate and Very High potential to yield fossils, the utility switchyard and SPL loop-in are located in an area with Low potential to yield. Therefore, construction of the utility switchyard and SPL loop-in would not result in a significant impact to paleontological resources.
- **Vegetation Resources.** One sensitive vegetation community (teddy bear cholla scrub) occurs within the proposed utility switchyard and SPL loop-in and approximately 9.8 acres of this community would be directly affected by construction. One special status plant species (Wolf's cholla) occurs within the proposed utility switchyard and SPL loop-in and 6 individuals of this species would be directly impacted by construction. No federal or state jurisdictional areas occur within the proposed utility switchyard and SPL loop-in. Impacts to teddy bear cholla scrub are considered significant, but can be reduced to a less-than-significant level through implementation of Mitigation Measure Veg-2a (*Provide habitat compensation or restoration for permanent impacts to sensitive vegetation communities*). Impacts to Wolf's cholla are not significant because it would not exceed significance thresholds.
- **Visual Resources.** While the wind turbine generators are tall prominent structures, the utility switchyard and SPL loop-in are relatively low-profile facilities that will be located adjacent to the SPL transmission line. These facilities will not be visually prominent and will be located in an area already dominated by transmission infrastructure (the SPL and Southwest Powerlink), resulting in only a minor visual change at that location.
- **Wildlife Resources.** No special status wildlife species were documented within the proposed utility switchyard and SPL loop-in. Construction would result in direct impacts to 5.9 acres of USFWS Essential Habitat for PBS. Impacts to USFWS Essential Habitat for PBS are considered significant, but can be reduced to a less-than-significant level through implementation of Mitigation Measure

Wild-1r (*Provide compensation for permanent impacts to PBS Essential Habitat*). Impacts to avian and bat species as a result of collision with switchyard and SPL loop-in features would not exceed the significance thresholds because the area is already dominated by existing transmission infrastructure and the collision risk to species would not increase substantially.

The County has therefore concluded that CPUC General Order 131-D, Section III.B.1.f, which provides for certain facilities which have undergone CEQA review as part of a larger project and for which the EIR finds no significant and unavoidable impacts caused by the facilities, is intended to apply to the proposed utility switchyard and SPL loop-in.

ES.5.3 Areas of Controversy

Based on input received from agencies, organizations, Native Americans and Tribal Governments, and members of the general public during scoping for the Draft EIS/EIR, several areas of controversy related to the OWEF emerged, including:

- Opposition to the placement of a large wind project on largely undisturbed desert land
- Concern for conflict with designated recreational and wilderness uses in the project area
- Concern regarding the impacts of the project on biological and cultural resources
- Concern regarding increased risk of wildfire hazards
- Concern regarding GHG emissions and climate change
- Concern regarding groundwater use
- Concern regarding the range of alternatives considered

Extensive comments were received during the scoping process for the OWEF. The scoping process and public input received during that process are provided in detail in Appendix C, Pubic Scoping Report.

ES.5.4 Issues to be Resolved

Extensive verbal and written comments were received during the scoping process for the OWEF project. The scoping process and public input received during that process are provided in detail in Appendix C, Public Scoping Report.

ES.6 Lead Agency Roles and Approvals

ES.6.1 Bureau of Land Management

As discussed in Section ES.2.1, the BLM's role is to respond to the Applicant's application under Title V of the FLPMA (43 U.S.C. 1761) for a ROW grant to construct, operate, maintain, and decommission a wind energy facility on public lands in compliance with FLPMA, BLM ROW regulations, and other applicable federal laws. The BLM will decide whether to approve, approve with modification, or deny issuance of a ROW grant to the Applicant for the proposed OWEF. The BLM's action will also include consideration of amending the CDCA Plan 1980. If the BLM decides to approve the issuance of a ROW grant, the BLM will also amend the CDCA as required.

ES.6.2 County of Imperial

Implementation of the proposed OWEF would require discretionary approvals from Imperial County, including approval of a Conditional Use Permit and a variance for structure heights (turbines and meteorological towers) would also be required in accordance with the requirements of the County of Imperial Land Use Ordinance (Title 9 of the Code of Ordinances). Pursuant to an agreement between the County and the BLM, the CUP covers the entire project except SDG&E facilities, including the utility switchyard and SDG&E staging and storage areas. In addition, the County would need to issue various ministerial permits for the project.

ES.7 Native American Government-to-Government Consultation

The BLM consults with Indian tribes on a government-to-government basis in accordance with several authorities including NEPA, the NHPA, the American Indian Religious Freedom Act (AIRFA), and Executive Order 13007. Under Section 106 of the NHPA, the BLM consults with Indian tribes as part of its responsibilities to identify, evaluate, and resolve adverse effects on historic properties affected by BLM undertakings. To date, the BLM has identified and invited 14 Indian tribes and one non-federally recognized Indian tribe to consult on the OWEF. These tribes include the Barona Band of Diegueno Indians, Campo Band of Mission Indians, Cocopah Indian Tribe, Ewiiaapaayp Band of Kumeyaay Indians, Fort Yuma Quechan Indian Tribe, Jamul Indian Village, Kwaaymii Laguna Band of Indians, La Posta Band of Kumeyaay Indians, Manzanita Band of Kumeyaay Indians, Mesa Grande Band of Mission Indians, San Pasqual Band of Diegueno Indians, Santa Ysabel Band of Diegueno Indians, Sycuan Band of Kumeyaay Nation, Torres-Martinez Desert Cahuilla Indians, and Viejas Band of Kumeyaay Indians.

The BLM invited Indian tribes to consult on the OWEF on a government-to-government basis at the earliest stages of project planning. Letters from the BLM were sent dated February 4, 2010, informing them about the application submitted by the Applicant for a ROW to conduct wind testing and to develop a wind energy generation facility near Ocotillo, California. The letters provided notification for both of the proposed projects, explained the role of the BLM and offered an invitation to the Tribes to consult in a government-to-government manner pursuant to the Executive Memorandum of April 29, 1994, and other relevant laws and regulations including Section 106 of the NHPA. The letters also requested assistance from the tribes identifying any issues or concerns about the two proposed projects, including the identification of sacred sites and places of traditional religious and cultural significance that might be affected by the proposed projects and needed to be taken into consideration by the agency.

The BLM sent follow up letters to tribes dated July 28, 2010, about the proposed wind development facility and invited them to enter into government-to-government and/or Section 106 consultation. The letters provided an update on the status of the environmental review process and cultural resources inventory planning. Attached to this letter was a copy of the Class II & III Inventory Research Design and Work Plan for their review and comment. These letters also requested assistance from the Tribes in identifying any issues or concerns they might have about the proposed project, including the identification of sacred sites and places of traditional religious and cultural significance that could be affected. The letters specifically asked that tribes let the agency know about areas of concern so that the cultural resources inventory could be adapted to include them. Finally, the letters notified tribes that Tierra

Environmental (the archaeological contractor) would be contacting them to determine if they had tribal representatives whom would participate in the inventory process.

Since July 2010, activities that the BLM has undertaken as part of the tribal consultation process for this project include: continuing to send correspondence requesting input from tribes; conducting meetings including group and individual government-to-government meetings for the purposes of information and idea exchange; providing cultural resource site visits on its own initiative and as requested by consulting parties; responding to information requests; and encouraging Tribal participation during the archaeological survey completed for the OWEF.

Consultation with Indian tribes, and discussions with tribal organizations and individuals has revealed very strong concern about the project and the impacts it would cause under all of the build alternatives. They have clearly explained the importance and sensitivity of cultural resources within and near the OWEF project area. Many Tribes have told the BLM that they attach religious and cultural significance to the project area and the broader landscape and some have proposed that the project area is encompassed by a TCP. They view the high density of resources as interrelated and consider the area as a whole to be sacred. During consultation, multiple Tribes expressed their direct opposition to the project including the Campo Band of Mission Indians, Kwaaymii Laguna Band of Indians, Manzanita Band of Kumeyaay Indians, Quechan Indian Tribe, San Pasqual Band of Diegueno Indians and the Viejas Band of Kumeyaay Indians. The Southern California Tribal Chairmen's Association has also sent the BLM a resolution in opposition to the OWEF project (No. 2012-02), dated January 24, 2012.

In response to the concerns and issues raised during both government-to-government consultation and Section 106 consultations with tribes, the BLM has carefully considered the information shared and the concerns of the Indian tribes. It has incorporated the same into the decision-making process concerning historic properties and adverse effects to them, as well as the analysis of cultural resources for NEPA purposes. From early on in the consultation processes, the BLM responded to the feedback it received from the various tribes concerning the traditional cultural and religious significance ascribed to the area and the cultural resources. The BLM encouraged the archaeological contractors to contact the tribes that the BLM was consulting with on the project and invite them to participate in the archaeological survey to help facilitate information sharing and consultation on the importance of resources in the OWEF APE. During the survey, the BLM also encouraged the project Applicant to re-design their proposed project facilities to avoid physically affecting the numerous archaeological sites that were discovered. This request resulted in the complete avoidance of physical effects to all archaeological resources identified during the archaeological survey. Tribes also indicated the important relationship between sites, such as the Spoke Wheel Geoglyph and Signal, Sugarloaf and Coyote Mountains. In response, a revised project configuration was proposed and is under consideration that removes 43 turbines from the project footprint to avoid obstruction of the main viewsheds from the site (the Refined Project) and the BLM has identified this Refined Project as its preferred alternative. Furthermore, in response to the information shared with respect to the sacred, religious and cultural significance associated with cremations, and other sensitive resources, additional turbines have been removed from areas in close proximity.

As part of its consultation under Section 106, AIRFA, and Executive Order 13007 the BLM acknowledges the traditional importance and value of the TCP and the surrounding landscape as an integral part of tribes' history and continuing culture. Based on the information received in the consultation process, the BLM assumes the portion of the TCP within the project area is eligible under Criterion A of the National Register for its traditional and cultural significance. The BLM continues to seek information from tribes about additional measures that could be implemented to protect, minimize and avoid impacts to the TCP to be documented and included in the Section 106 MOA and Historic Properties Treatment Plan that is under preparation and review for this project. The draft MOA as it currently stands includes measures to respond to the concerns expressed above by Indian tribes including the requirement of a Tribal Access Plan recognizing the importance of the TCP and their right to access federally managed lands to conduct cultural and religious practices, as variously specified in Executive Order 13007, the Religious Freedom Act (RFA), and the AIRFA.

The strong concerns raised about additional discoveries of cultural resources during construction, including cremation sites, has resulted in requirements within the MOA for a robust construction monitoring plan that provides for tribal participation as well as development of a NAGPRA Plan of Action to ensure the proper treatment and protection of prehistoric human remains should any be found during construction. Mitigation for the project in response to tribal concerns about increased access and potential looting or vandalism includes additional BLM ranger patrols and funding and the development of a long-term cultural resource monitoring program.

To address the concerns raised about the lack of tribal values within the archaeological report, the BLM is considering compiling all the tribal consultation information to date as well as summaries of addition previous ethnographic information about the project area into a separate stand-alone document to supplement the archaeological survey report. This has been discussed with some tribes and tribal members during government-to-government meetings and appears to be an idea that is received favorably.

ES.8 Public Participation

Scoping activities were conducted by the BLM in compliance with the requirements of NEPA for the OWEF on January 5 and 6, 2011. These scoping activities were conducted jointly with the County of Imperial. The BLM's scoping activities are described in detail in the Public Scoping Report, which is provided in Appendix C. The scoping report documents the Notice of Intent, the scoping meetings, workshops, and the comments received during scoping.

The BLM and County of Imperial distributed the Draft EIS/EIR for public and agency review and comment between July 8 and October 6, 2011. Public meetings on the Draft EIS/EIR were conducted on August 24 and 25, 2011, in El Centro and Ocotillo, California, respectively. A total of 405 comment letters, including e-mails, were received. Eight comment letters were received after the close of the comment period.

In connection with the Section 106 and government-to-government processes, the Lead Agencies agreed to fully consider any additional comments submitted by federally recognized Native American Tribes by December 9, 2011. Further, the BLM agreed to include any additional comments in the Final EIS/EIR received from tribes by February 17, 2012.

Appendix O (Comment Letters) and Appendix N (Response to Comments) of the Final EIS/EIR include all of the written comment letters received by the BLM and County of Imperial in response to the NOA and the responses to these comment letters.

1. INTRODUCTION

The Proposed Plan Amendment (PA) and Final Environmental Impact Statement/Environmental Impact Report (Final EIS/EIR) is a joint document published by the Bureau of Land Management (BLM), U.S. Department of Interior, and the County of Imperial, California (County).

This Proposed PA & Final EIS/EIR analyzes the impacts of Ocotillo Express LLC's (Applicant's) Ocotillo Wind Energy Facility (OWEF). The Applicant has filed with the BLM an application for a Right-of-Way (ROW) authorization to construct, operate, maintain, and decommission an approximately 12,500-acre, up to 465-megawatt (MW) wind energy project including a substation, operations and maintenance facilities, transmission lines, and temporary construction lay down areas (CACA-51552). The project also includes a switchyard, which would not be decommissioned. The *Regional Context* for the proposed OWEF is shown in Figure 1-1 (See Appendix A for all figures referenced in the PA & Final EIS/EIR). The *Proposed OWEF Site Layout* is shown in Figure 2.3-1. This PA & Final EIS/EIR presents the potential effects of the OWEF and five alternatives on BLM-administered lands and other affected lands and resources. In this analysis, six alternatives, including the proposed OWEF or Proposed Action, were developed and evaluated. These include:

- The Proposed Action - 155 Wind Turbine Generators/Approval of a land use plan amendment to make site available for wind energy development (Alternative 1);
- 137 Wind Turbine Generators Alternative/Approval of a land use plan amendment to make site available for wind energy development (Alternative 2);
- 105 Wind Turbine Generators Alternative/Approval of a land use plan amendment to make site available for wind energy development (Alternative 3);
- No issuance of a ROW Grant or County approval/No Land Use Plan (LUP) Amendment (Alternative 4, or the "No Action Alternative");
- No issuance of a ROW Grant or County approval/Approval of a land use plan amendment to exclude wind energy development on the site of the Proposed Action (Alternative 5); and
- No issuance of ROW Grant or County approval/Approval of a land use plan amendment to make site available for future wind energy development (Alternative 6).

In compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), the BLM and the County prepared this Final EIS/EIR to inform the public about the OWEF and to meet the needs of federal, state, and local permitting agencies in considering the OWEF. The BLM authorization of a ROW grant for the project would require a Resource Management Land use Plan Amendment to the California Desert Conservation Area Plan (BLM, 1980), as amended (CDCA Plan).

This Final EIS/EIR describes and evaluates the environmental impacts that are expected to result from construction, operation, maintenance, and decommissioning of the OWEF and discusses mitigation measures that, if adopted, would avoid, minimize, or mitigate the adverse environmental impacts identified. This Final EIS/EIR also identifies alternatives to the Proposed Action (including a No Action Alternative), and evaluates the environmental impacts associated with these alternatives. In accordance with NEPA requirements, the alternatives identified constitute reasonable alternative means of meeting the purpose and need for the action. In accordance with CEQA, the alternatives identified respond to the stated purpose and need for the proposed project (including a No Action Alternative) that could avoid or minimize significant environmental impacts associated with the project as proposed by the Applicant. Specifically, the information contained in this Final EIS/EIR will be considered by the BLM in its deliberations regarding approval of the ROW grant and Land Use Plan Amendment and may also be considered by the other agencies with regard to their respective permits, including the County, and other federal, state, and local agencies.

Project Refinements after Publication of the NOI/NOP and Changes after Publication of the Draft EIS/EIR

After publication of the Notice of Intent (NOI) and Notice of Preparation (NOP), the Applicant modified the Proposed Action by reducing the number of wind turbine generators from 193 to 155. This was done in order to avoid or minimize certain environmental impacts. Specifically, wind turbines were eliminated to avoid direct impacts on cultural resources, minimize potential impacts on bighorn sheep, avoid streambeds, address noise and shadow flicker concerns, and avoid airspace conflicts.

Wind turbines were also eliminated to avoid wake effects that could affect turbine manufacturer's site suitability analysis and to avoid terrain where turbine installation and construction would be problematic. Wind turbine wake describes the reduction in wind energy downstream from the turbine cause by the extraction of energy from the wind by turbine. As the wind proceeds downstream, there is a spreading of the wake and then, eventually, the wake recovers towards free stream conditions. Wake effect is the aggregated influence on the energy production of the wind farm, which results from the changes in wind speed caused by the impact of the turbines on each other (Wind-energy-the-facts.org, 2011).

Finally, the locations of many of the remaining 155 turbine sites were also modified as part of a "micro-siting" exercise to minimize direct impacts on cultural resources, biological resources, and surface drainage features. Some of these changes were made in response to concerns raised at the public scoping meetings conducted in early January 2011.

On February 3, 2012, the Applicant submitted a letter to Imperial County indicating that it would no longer be seeking approval for the single wind turbine located on private property. Because this was the only proposed turbine location not located on BLM-administered land, it was the only location that required approval only from Imperial County. Without this turbine location, the project no longer requires a General Plan amendment or zone change to be approved by Imperial County. The Final EIS/EIR has been revised to reflect the fact that a General Plan amendment and zone change are no longer required; however, the impact analysis still includes the turbine on private property. Also, the County is no longer required to conduct tribal consultation pursuant to SB 18 for the project as that requirement is only triggered by a proposed General Plan amendment.

Readers should also be aware that further project changes are possible after publication of this Final EIS/EIR. Decisions made by the BLM and the County may result in either the denial or approval of the proposed project, or approval with modifications. For example, at the time of publication of this Final EIS/EIR, the Applicant had proposed to eliminate some of the turbine locations analyzed in this document in order to further reduce effects on cultural resources. If these turbine locations are eliminated, only 112 wind turbines generators would be installed at the project site (see Figure 2.1-6 in Appendix A).

1.1 Purpose and Need

NEPA Regulations published by the Council on Environmental Quality (CEQ) state that environmental impact statements' Purpose and Need section "shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action" (40 CFR §1502.13). The following discussion sets forth the purpose of and need for the action as required under NEPA.

1.1.1 BLM Purpose and Need

In accordance with Federal Land Policy and Management Act (FLPMA) (Section 103(c)), public lands are to be managed for multiple uses that takes into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant ROWs on public lands for systems of generation, transmission, and distribution of electric energy (Section 501(a)(4)). Taking into account the BLM's multiple use mandate, the purpose and need for the Proposed Action is to respond to a FLPMA ROW application submitted by the Applicant to construct, operate, maintain, and decommission a wind energy-generating facility and associated infrastructure on public lands administered by the BLM in compliance with FLPMA, BLM ROW regulations, and other applicable Federal laws and policies.

The proposed action would, if approved, assist the BLM in addressing the following management objectives:

- Executive Order 13212, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "production and transmission of energy in a safe and environmentally sound manner."
- The Energy Policy Act 2005 (EPAct 05), which sets forth the "sense of Congress" that the Secretary of the Interior should seek to have approved non-hydropower renewable energy projects on the public lands with a generation capacity of at least 10,000 MW by 2015.
- Secretarial Order 3285A1, dated March 11, 2009, and amended on February 22, 2010, which "establishes the development of renewable energy as a priority for the Department of the Interior."

This proposed action, if approved, would also further the development of environmentally responsible renewable energy as a priority for the Department of the Interior.

The BLM will decide whether to deny the proposed ROW, grant the ROW, or grant the ROW with modifications. Modifications may include modifying the proposed use or changing the route or location of the proposed facilities (43 CFR 2805.10(a)(1)). In connection with its decision on the OWEF, the BLM's action will also include consideration of potential amendments to the CDCA. The CDCA, while recognizing the potential compatibility of wind energy facilities on public lands, requires that all sites associated with power generation or transmission not identified in that plan be considered through the land use plan amendment process. If the BLM decides to approve the issuance of a ROW grant, the BLM will also amend the CDCA as required.

1.1.2 U.S. Army Corps of Engineers Draft Section 404(b)(1) Alternatives Analysis Basic and Overall Project Purpose and Need

The U.S. Army Corps of Engineers (ACOE) is a cooperating agency with the BLM on this Draft EIS/EIR. The Federal Clean Water Act (CWA) Section 404(b)(1) Guidelines (Guidelines) promulgated by the U.S. Environmental Protection Agency (EPA) explain that, when an action is subject to NEPA and the ACOE is the permitting agency, the analysis of alternatives prepared for NEPA will in most cases provide the information needed for analysis under the Guidelines. The Guidelines also state that, in some cases, the NEPA document may have addressed "…a broader range of alternatives than required to be considered under [the Guidelines] or may not have considered alternatives in sufficient detail to respond to the details of these Guidelines. In the latter case, it may be necessary to supplement these NEPA documents with this additional information." (40 CFR 230.10(a)(4)). In light of this statement in the Guidelines and because the project purpose statement under NEPA and the Guidelines are not necessarily identical, the ACOE has reviewed and refined the project purpose to ensure it meets the standards of the Guidelines.

For CWA Section 404 purposes, the ACOE's Draft Section 404(b)(1) Alternatives Analysis for the proposed OWEF provides the following statement of basic and overall project purpose:

> The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed action, and is used by the ACOE to determine whether an applicant's project is water dependent (i.e., whether it requires access or proximity to or siting within waters of the U.S.). The basic project purpose for the proposed action is "Energy Production." The basic project purpose is not water dependent. The discharge of fill material is not proposed to occur in any special aquatic sites in the project area. Therefore, the rebuttable presumptions that there are less environmentally damaging alternatives for the proposed activity that do not affect special aquatic sites does not apply [40 CFR 230.10(a)(3)].

The overall project purpose is "To provide a wind energy facility ranging in size from approximately 315 MW to 465 MW in Imperial County, California."

1.1.3 Applicant's Objectives

The Applicant's fundamental objective for the Proposed Action is to construct, operate, maintain, and eventually decommission an up to 465-MW wind energy facility and associated interconnection transmission infrastructure to provide renewable electric power to California's existing transmission grid to help meet federal and state renewable energy supply and greenhouse gas (GHG) emissions reduction requirements. The Applicant is committed to constructing and operating the project in an environmentally responsible manner and to providing a sustainable source of renewable energy to the State's investor-owned utilities and the public. The Applicant's specific objectives for the project are:

- To construct and operate a cost competitive up to 465-MW wind energy facility to provide a renewable and reliable source of power to California's investor-owned utilities (IOU);
- To locate the project on contiguous lands with high wind potential to maximize operational efficiency while minimizing environmental impacts and water use;
- To minimize environmental impacts and land disturbance by locating the project near existing transmission infrastructure and roads and by avoiding sensitive environmental areas, recreational

resources and wildlife habitats (e.g., Desert Wildlife Management Areas, Areas of Critical Environmental Concern);

- To develop a source of renewable electric power that can be placed into service in an expeditious manner by interconnecting to San Diego Gas and Electric's (SDG&E) Sunrise Powerlink 500-kV transmission line; and
- To assist California and its IOUs in meeting the State's Renewables Portfolio Standard (RPS) and GHG emissions reduction requirements, including the requirements set forth in Senate Bill (SB) 1078 (California RPS Program), Assembly Bill (AB) 32 (California Global Warming Solutions Act of 2006), and the Governor's Executive Order S-14-08[1] to increase the state's Renewable Energy Standard to 33 percent renewable power by 2020. In particular:
    - California's RPS mandate that requires the State's IOUs to supply 20 percent of California's total electricity through renewable energy generation by 2010, as set forth in Senate Bill (SB) 1078 (2001-2002 Reg. Sess.) (establishing the California RPS Program) and SB 107 (2005-2006 Reg. Sess.) (accelerating the 20 percent requirement to 2010).
    - California's GHG emission reduction goals set forth in AB 32 that requires the State's GHG emissions be reduced to 1990 levels by 2020.

1.1.4 CEQA Objectives

The overall intent of the proposed OWEF is to promote the use of renewable energy to provide energy to local and statewide utility customers. The following objectives reflect the objectives for the OWEF:

- Provide energy from the Proposed Action to help meet California's Renewable Portfolio Standard (RPS) requirement for renewable energy;
- Develop a wind energy project on the windiest sites available to maximize energy production and provide the lowest-cost renewable, non-polluting electricity;
- Incorporate the BLM's Best Management Practices (BMPs) for developing wind energy and ensuring minimal environmental impacts.

In 2006, the State of California passed the California Global Warming Solutions Act (Assembly Bill 32), which requires the state to reduce emissions of carbon dioxide (CO2) and other GHGs to 1990 emission levels (a 25 percent reduction) by 2020. Senate Bill 1368 was enacted in 2006, which prohibits California electric utilities from constructing power plants or entering into long-term energy purchase contracts with facilities that do not meet the GHG emissions standard. The California RPS legislation requires investor-owned utilities, publicly owned utilities, and energy service providers to increase purchases of renewable energy such that at least 33 percent of retail sales are procured from renewable energy resources by December 31, 2020. The proposed OWEF would contribute toward meeting the California RPS and GHG emissions legislation while satisfying increased demand for electricity.

1.1.5 Decisions to be Made

As defined by the purpose and need, the BLM is responding to the application from Ocotillo Express LLC for a ROW grant to construct, operate, maintain, and decommission a wind energy facility on public lands. In doing so, the BLM will adopt one of the alternatives described above or a variant similar to one of the alternatives.

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[1] The RPS standard for 33 percent of energy from renewable sources by 2020 was enacted by law with the passage of SB X1-2, which was signed by Governor Brown on April 12, 2011.

Alternatives considered in the EIS/EIR are based on issues identified by the BLM and on comments received during the public scoping process. The BLM is required to consider a range of alternatives that are considered "reasonable," usually defined as alternatives that are realistic (not speculative), technologically and economically feasible, and responsive to the purpose and need of the project. The EIS/EIR also needs to consider a "no action" or "no project" alternative.

This document provides information to the authorized officer to make the following decisions:

- Should the application area remain undesignated or be designated as suitable or unsuitable for wind energy development?
- If the BLM designates the area as suitable for wind energy development, it would decide:
    - Should the proposed ROW grant be issued as applied for, issued for a modified project, or denied?
    - If the BLM decides to approve the issuance of a ROW grant, the BLM will also amend the CDCA as required.

Similarly, the County of Imperial must respond to the applications submitted by Ocotillo Express LLC. In rendering a decision whether to approve the proposed project and issue the necessary permits to construct and operate the OWEF, the County must determine whether the project is consistent with the policies of the Imperial County General Plan and conforms to applicable regulations and standards set forth in County ordinances. The County must also make findings pursuant to CEQA that the project's impacts on the physical environment have been mitigated to the degree feasible.

1.2 General Location and Map

The proposed OWEF is an up to 465-MW wind energy facility located on approximately 12,500 acres in Imperial County, California (Figure 1-1). The proposed OWEF would be located almost entirely on BLM-administered lands in the Imperial Valley. The Applicant has entered into an agreement with the owner of approximately 26 acres of private land near the center of the proposed project site for installation of a wind turbine generator. The separate parcels are consolidated into a single 465-MW wind project. The Sunrise Powerlink, an approved 500-kV transmission line, crosses the proposed project site (Figure 2.3-1), facilitating interconnection of the proposed OWEF and transmission of its renewable energy output to key load centers in southern California.

As shown on Figure 2.3-1, the proposed OWEF site consists of two site areas: the main northwestern site (Site 1), with an approximate area of 11,300 acres, and the smaller southeastern site (Site 2), with an approximate area of 1,200 acres.

A portion of the Imperial Highway (S2) runs through the proposed project site in a northwest to east direction, as well as Interstate (I-8), which crosses a portion of the southern area of the project site (Figure 2.3-1). The Evan Hewes Highway is located east of the proposed project site, traversing from northeast to southwest and merging with the Imperial Highway. Additionally, State Route 98 crosses the northeastern portion of Site 2 of the project site, and eventually connects to I-8.

The proposed OWEF site currently has existing access via I-8 to the south and/or the S2, which crosses near the center of the project site. Please see Figure 2.1-4 for a complete list of access locations during construction and operation of the proposed OWEF.

The site is located immediately north of the Jacumba Wilderness, approximately two miles west of the Yuha Basin Area of Critical Environmental Concern, approximately 1.5 miles southwest of the Plaster City Off-Highway Vehicle Open Area, approximately one mile south of the Coyote Mountains Wilderness, and adjacent to Anza-Borrego Desert State Park (See Figure 3.16-1). The proposed OWEF would be visible from portions of these special land use areas.

The Emory Ranch Airport is located outside of the proposed OWEF site boundaries, approximately 0.25 mile from the boundary of Site 1. Additionally, the proposed OWEF would be located approximately five miles southwest of the Naval Reservation Target 103, identified as a live bombing area, which is also a military flight training corridor.

The proposed OWEF would be located south of several large quarries in the southern foothills of the Coyote Mountains, and would be located approximately eight miles west of the large gypsum sheetrock manufacturing plant located in the unincorporated community of Plaster City. The nearest sensitive receptors are located immediately south of the northeastern portion of the proposed OWEF site in the unincorporated community of Ocotillo and east of the southeast portion of the proposed project in the unincorporated community of Nomirage.

1.3 Major Authorizing Laws and Regulations

The primary agency-specific authorizing laws and regulations are summarized below.

1.3.1 Bureau of Land Management

The BLM's authority and policy guidance for making a decision related to the OWEF flows from Title V of the FLPMA [43 U.S.C. 1701, et seq.], Section 211 of the EPAct (119 Stat. 594, 600), BLM's Wind Energy Development Policy (dated December 19, 2008), Secretarial Order 3285A1(dated March 11, 2009, as amended February 22, 2010), and BLM Instruction Memoranda 2011-59, 2011-60 and 2011-61 (each dated February 7, 2011). FLPMA authorizes the BLM to issue ROW grants for systems used for generation, transmission, and distribution of electric energy. Section 211 of EPAct states that the Secretary of the Interior should seek to have approved a minimum of 10,000 MWs of renewable energy generating capacity on public lands by 2015.

1.3.2 U.S. Army Corps of Engineers

Section 404 of the CWA authorizes the Secretary of the Army, acting through the ACOE, to issue permits regulating the discharge (placement) of fill material into waters of the U.S. Waters of the U.S. are broadly defined in 33 CFR Section 328.3(a) to include navigable waters; perennial, intermittent, and ephemeral streams; lakes, rivers, ponds, wetlands, marshes, and wet meadows. Throughout the Draft PA & Draft EIS/EIR process, the BLM has provided information to the ACOE to assist them in making a determination regarding their jurisdiction and need for a Section 404 permit.

1.3.3 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) has jurisdiction to protect threatened and endangered species under the Endangered Species Act (ESA) [16 U.S.C. Section 1531 et seq.]. Formal consultation with the USFWS under Section 7 of the ESA is required for any federal action that may adversely affect a federally-listed species. This consultation has been initiated through a request by the BLM to initiate formal consultation and the submittal of a Biological Assessment (BA).

1.3.4 California Department of Fish and Game

The California Department of Fish and Game (CDFG) has the authority to protect water resources of the State through regulation of modifications to streambeds, under Section 1602 of the Fish and Game Code. The BLM and the Applicant will provide information to CDFG to assist in its determination of the impacts to streambeds, and identification of permit and mitigation requirements.

CDFG also has the authority to regulate potential impacts to species that are protected under the California Endangered Species Act (CESA). The Applicant may need to file an Incidental Take Permit application with CDFG.

1.3.5 Imperial County

Imperial County, as a political subdivision of the State, shares responsibility in implementing California's RPS Program and GHG emissions reduction requirements, including the requirements set forth in AB 32. Accordingly, implementation of the proposed OWEF will require discretionary approvals from Imperial County for those private land portions of the project which include a Conditional Use Permit and a variance for structure height (turbine) in accordance with the requirements of the County of Imperial Land Use Ordinance (Title 9 of the Code of Ordinances).

Imperial County is responsible for certifying the Final EIS/EIR, which is required prior to making any decision to approve the proposed project. The County will make the decision to certify the Final EIS/EIR after reviewing the document for consistency with CEQA requirements (CEQA Guidelines §15090). If the Final EIS/EIR shows that the proposed OWEF would have significant and unavoidable (not mitigable) impacts and the County decides to approve the project, then the County will need to adopt a "Statement of Overriding Considerations" explaining the reasons for approving the project despite its significant impacts (CEQA Guidelines §15093).

An analysis of the proposed OWEF's consistency with applicable policies of the Imperial County General Plan is provided in Appendix K.

1.4 Relationship of Proposed Action to BLM Policies, Plans, and Programs

Federal Land Policy and Management Act of 1976

FLPMA provides the BLM's overarching mandate to manage the lands and resources under its stewardship based on the principles of multiple use and sustained yield. Multiple use is a concept that directs management of lands and resource values in a way that best meets the present and future needs of Americans and is defined as "a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources" (FLPMA §103[c]). In processing a land use plan amendment, BLM must also comply with the BLM Planning Regulations (43 CFR Part 1600) and the BLM Land Use Planning Handbook (H-1601-1; March 2005).

California Desert Conservation Area Plan

The CDCA encompasses 25 million acres in southern California designated by Congress in 1976 through FLPMA. The BLM manages about 10 million of those acres. Congress directed the BLM to prepare and implement a comprehensive long-range plan for the management, use, development, and protection of public lands within the CDCA. The 1980 CDCA Plan, as amended, is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The CDCA Plan provides overall regional guidance for BLM-administered lands in the CDCA and establishes long-term goals for protection and use of the California desert.

The CDCA Plan establishes four multiple use classes, multiple use class guidelines, and plan elements for specific resources or activities, such as motorized vehicle access, recreation, and vegetation. The multiple use classes are:

- **Class C (Controlled Use).** About four million acres are Class C. These include 69 wilderness areas (3,667,020 acres) created by Congress with the October 1994 passage of the California Desert Protection Act. These lands are to be preserved in a natural state; access generally is limited to nonmotorized, nonmechanized means—on foot or horseback.
- **Class L (Limited Use).** About four million acres are Class L. These lands are managed to protect sensitive, natural, scenic, ecological, and cultural resource values. They provide for generally lower-intensity, carefully controlled multiple uses that do not significantly diminish resource values.
- **Class M (Moderate Use).** About 1.5 million acres are Class M. These lands are managed in a controlled balance between higher-intensity use and protection. A wide variety of uses, such as mining, livestock grazing, recreation, energy, and utility development are allowed. Any damage that permitted uses cause must be mitigated.
- **Class I (Intensive Use).** About 500,000 acres are Class I. These lands are managed for concentrated use to meet human needs. Reasonable protection is provided for sensitive natural values and mitigation of impacts, and impacted areas are rehabilitated when possible.

The land use plan for the BLM-administered lands is the CDCA Plan of 1980, as amended. In the CDCA Plan, the location of the proposed OWEF facility includes land that is classified as Multiple-Use Class L (Limited Use). The Plan states that wind energy facilities may be allowed within Limited Use areas after NEPA requirements are met. This PA & EIS/EIR will act as the mechanism for complying with those NEPA requirements. Because wind energy facilities are an allowable use of the land as classified in the CDCA Plan, the Proposed Action does not conflict with the CDCA Plan. However, Chapter 3, “Energy Production and Utility Corridors Element” of the CDCA Plan also requires that newly proposed power facilities that are not already identified in the CDCA Plan be considered through the Plan Amendment process. The proposed OWEF is not currently identified within the CDCA Plan and, therefore, a Plan Amendment is required to include the facility as a recognized element within the CDCA Plan.

Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States

The BLM is responsible for the development of energy resources on BLM-administered lands in an environmentally sound manner. To address increased interest in wind energy development and to implement the national energy policy recommendation to increase renewable energy production, the BLM undertook efforts to evaluate wind energy potential on public lands and establish wind energy policy. The BLM, in cooperation with the DOE, prepared a programmatic environmental impact statement (PEIS) in

2005 to: (1) assess the environmental, social, and economic impacts associated with wind energy development on BLM-administered land; and (2) evaluate a number of alternatives to determine the best management approach for the BLM to adopt in terms of mitigating potential impacts and facilitating wind energy development.

The Final PEIS analyzed three alternatives for managing wind energy development on BLM-administered lands, including: (i) the proposed action, which would implement a Wind Energy Development Program, establish policies and best management practices (BMPs) for wind energy right-of-way (ROW) authorizations, and amend 52 BLM land use plans; (ii) the no action alternative, which would allow continued wind energy development under the terms and conditions of the BLM Interim Wind Energy Development Policy; and (iii) a limited wind energy development alternative, which would allow wind energy development only in selected locations.

Based on the Wind PEIS, the BLM decided to implement a comprehensive Wind Energy Development Program to administer the development of wind energy resources on BLM-administered public lands in 11 western states – Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming – that included amendments to 52 BLM land use plans in 9 of the states in the study area – Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

To support such wind energy development on public lands and also to minimize potential environmental and sociocultural impacts, the BLM proposes to build on the interim policy to establish a Wind Energy Development Program. Anticipated elements of the BLM's proposed Wind Energy Development Program include: (1) an assessment of wind energy development potential on BLM-administered lands through 2025 (a 20-year period); (2) policies regarding the processing of wind energy development ROW authorization applications; (3) best management practices (BMPs) for mitigating the potential impacts of wind energy development on BLM-administered lands; and (4) amendments of specific BLM land use plans to address wind energy development.

1.4.1 Planning Criteria (BLM)

The CDCA planning criteria are the constraints and ground rules that guide and direct the development of the Plan Amendment. They ensure that the Plan Amendment is tailored to the identified issues and ensure that unnecessary data collection and analyses are avoided. They focus on the decisions to be made in the Plan Amendment, and will achieve the following:

> "Sites associated with power generation or transmission not identified in the Plan will be considered through the Plan Amendment process."

Because the proposed facility is not currently identified within the CDCA Plan, an amendment to identify the proposed facility within the CDCA Plan is hereby proposed. As specified in the CDCA Plan Chapter 7, Plan Amendment Process, there are three categories of Plan Amendments, including:

> *Category 1*, for proposed changes that will not result in significant environmental impact or analysis through an EIS;
>
> *Category 2*, for proposed changes that would require a significant change in the location or extent of a multiple-use class designation; and

Category 3, to accommodate a request for a specific use or activity that will require analysis beyond the Plan Amendment Decision.

Based on these criteria, approval of the proposed OWEF would require a Category 3 amendment. The section below (1.4.2 – Statement of Plan Amendment) summarizes the procedures necessary to evaluate the proposed Plan Amendment, as well as the procedures required to perform the environmental review of the ROW application.

1.4.2 Statement of Plan Amendment

The Implementation section of the Energy Production and Utility Corridors Element of the CDCA Plan lists a number of Category 3 amendments that have been approved since adoption of the CDCA Plan in 1980. An additional amendment is proposed to be added to this section of the CDCA, and would read "Permission granted to construct wind energy facility (proposed Ocotillo Wind Energy Facility)."

Plan Amendment Process

The Plan Amendment process is outlined in Chapter 7 of the CDCA Plan. In analyzing an applicant's request for amending or changing the Plan, the BLM District Manager will:

- Determine if the request has been properly submitted and if any law or regulation prohibits granting the requested amendment.
- Determine if alternative locations within the CDCA Plan are available which would meet the applicant's needs without requiring a change in the Plan's classification, or an amendment to any Plan element.
- Determine the environmental effects of granting and/or implementing the applicant's request.
- Consider the economic and social impacts of granting and/or implementing the applicant's request.
- Provide opportunities for and consideration of public comment on the proposed amendment, including input from the public and from federal, State, and local government agencies.
- Evaluate the effect of the proposed amendment on BLM management's desert-wide obligation to achieve and maintain a balance between resource use and resource protection.

Decision Criteria for Evaluation of Proposed Plan Amendment

The Decision Criteria to be used for approval or disapproval of the proposed plan amendment require that the following determinations be made by the BLM Desert District Manager:

- The proposed plan amendment is in accordance with applicable laws and regulations; and
- The proposed plan amendment will provide for the immediate and future management, use, development, and protection of the public lands within the CDCA.

The BLM Desert District Manager will base the rationale for these determinations on the principles of multiple use, sustained yield, and maintenance of environmental quality as required in FLPMA.

Decision Criteria for Evaluation of Application

In addition to defining the required analyses and Decision Criteria for Plan Amendments, the CDCA Plan also defines the Decision Criteria to be used to evaluate future applications (e.g., application for ROW) in the Energy Production and Utility Corridors Element of Chapter 3. These Decision Criteria include:

- Minimize the number of separate ROWs by utilizing existing ROWs as a basis for planning corridors;
- Encourage joint-use of corridors for transmission lines, canals, pipelines, and cables;
- Provide alternative corridors to be considered during processing of applications;
- Avoid sensitive resources wherever possible;
- Conform to local plans whenever possible;
- Consider wilderness values and be consistent with final wilderness recommendations;
- Complete the delivery systems network;
- Consider ongoing projects for which decisions have been made; and
- Consider corridor networks which take into account power needs and alternative fuel resources.

1.5 Relationship of Proposed Action to non-BLM Policies, Plans, and Programs

1.5.1 Relationship to Federal Plans, Policies, Programs, and Laws

National Environmental Policy Act

NEPA (42 USC. 4321 et seq.) declares a continuing federal policy that directs "a systematic, interdisciplinary approach" to planning and decision-making and requires the preparation of environmental statements for "major Federal actions significantly affecting the quality of the human environment." The Council on Environmental Quality's (CEQ's) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508) require Federal agencies to identify and assess reasonable alternatives to proposed actions. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should, therefore, be seen as an overall framework for the environmental evaluation of federal actions. In processing ROW applications, BLM must also comply with the Department of the Interior's regulations applicable to implementing the procedural requirements of NEPA (43 CFR Part 46), as well as BLM's NEPA Handbook (H-1790-1; January 2008).

Clean Air Act

The Clean Air Act (CAA) (42 USC 7401-7661), as amended, regulates air pollution to improve air quality. It regulates air emissions from area, stationary, and mobile sources. This law also authorizes the USEPA to establish National Ambient Air Quality Standards to protect public health and the environment.

Clean Water Act

The CWA (33 USC 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires that an applicant for a Federal license or permit that allows activities resulting in a discharge to waters of the U.S. must obtain a state certification that the discharge complies with other provisions of the CWA. The RWQCBs administer the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredge or fill material) from a point source into waters of the U.S.

Section 404 establishes a permit program administered by the ACOE regulating the discharge of dredged or fill material into waters of the U.S., including wetlands. The CWA also contains the requirements under which the RWQCBs set water quality standards for all contaminants in surface waters.

Endangered Species Act of 1973

The ESA (16 USC 1531-1543) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. The USFWS administers the ESA. The major components of the ESA are:

- Provisions for the listing of threatened and endangered species;
- The requirement for consultation with the USFWS on federal projects that may affect listed species or their habitat;
- Prohibitions against "take" of listed species. Under the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct"; and
- Provisions for permits to allow the incidental taking of threatened and endangered species.

National Historic Preservation Act of 1966, as Amended

The National Historic Preservation Act (NHPA) (16 USC 470) requires federal agencies with jurisdiction over a proposed Federal project to take into account the effect of the undertaking on cultural resources listed or eligible for listing on the National Register of Historic Places and requires that the agencies afford the State Historic Preservation Office (SHPO), any potentially affected Indian tribe, and the Advisory Council on Historic Preservation with an opportunity to comment on the undertaking. When the Act was amended in 1980, Section 110 was added to expand and make more explicit the statute's statement of Federal agency responsibility for identifying and protecting historic properties and avoiding unnecessary damage to them. Section 110 also charges each Federal agency with the affirmative responsibility for considering projects and programs that further the purposes of the NHPA, and it declares that the costs of preservation activities are eligible project costs in all undertakings conducted or assisted by a Federal agency.

1.5.2 Relationship to State and Local Laws, Plans, Policies, and Programs

California Endangered Species Act

The CESA (Fish and Game Code 2050 et seq.) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no State agency consultation procedures under CESA. For projects that affect a species that is both State and federally listed, compliance with the Federal ESA will satisfy CESA if the CDFG determines that the Federal incidental take authorization is "consistent" with CESA under Fish and Game Code Section 2080.1 and issues a Consistency Determination to that effect. For projects that will result in a take of a State-only listed species, an applicant must apply for a take permit under Section 2081(b).

California Fish and Game Code, Streambed Alteration Agreements

Sections 1601 to 1603 of the California Fish and Game Code require notifying CDFG prior to constructing any project that would divert, obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occur during the environmental review process. When an existing fish or wildlife resource may be substantially adversely affected, the CDFG is required to propose reasonable project changes and/or mitigation to protect the resource. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications, and bid documents for the project.

State Historic Preservation Officer

The California SHPO reviews state programs and projects that may impact historic resources that are located on state-owned land pursuant to California Public Resources Code § 5024 and 5024.5. Additionally, the California SHPO is a mandatory consulting party in the Section 106 process and is required to respond, either with concurrence or non-concurrence, to BLM's documented finding of effect.

California's Renewables Portfolio Standard

California's RPS requires investor-owned utilities, publicly owned utilities, and energy service providers to increase purchases of renewable energy such that at least 33 percent of retail sales are procured from renewable energy resources by December 31, 2020. In the interim, each entity is required to procure an average of 20 percent of renewable energy for the period of January 1, 2011, through December 31, 2013; 25 percent by December 31, 2016, and 33 percent by 2020. These RPS requirements were enacted through Senate Bill (SB) X1-2, which was signed by Governor Brown in April 2011, and increase previous requirements set forth in SB 1078 (2001-2002 Reg. Sess.) (establishing the California RPS Program) and SB 107 (2005-2006 Reg. Sess.) (accelerating the 20 percent requirement to the year 2010).

Imperial County General Plan

Imperial County covers an area of 4,597 square miles within the southeastern portion of the State of California. Approximately 50 percent of Imperial County lands are undeveloped and under federal ownership and jurisdiction. Currently, 20 percent of the nearly 3 million acres of Imperial County is irrigated for agricultural purposes, most notably the central area known as Imperial Valley. The Imperial County General Plan consists of nine elements that serve as the primary policy statement by the Board of Supervisors for implementing development policies and land uses in Imperial County.

Imperial County Air Pollution Control District

The proposed OWEF is located within the jurisdiction of the Imperial County Air Pollution Control District (ICAPCD), which reviews the plans and specifications for construction in the proposed project area. The ICAPCD would assess emissions and possible air contamination resulting from construction and operational activities (e.g., road dust, windblown contaminants, and emissions from construction activities).

1.5.1 List of Required Permits and Approvals

Table 1-1 provides a list of the anticipated Federal and State permits and approvals that would be required for the proposed OWEF, including those that would be issued by the Lead Agencies. Please note that CEQA review is only required for State or local approvals that are considered discretionary in nature.

Table 1-1. Entitlements Required for the Proposed OWEF

Federal	
BLM	Record of Decision (ROD) Land Use Plan Amendment ROW Grant
BLM State Office	Archeological Resources Protection Act, Cultural Resource Use Permit
BLM El Centro Field Office	Fieldwork Authorization
USFWS	Biological Opinion
ACOE	CWA Section 404 Department of the Army Permit
Federal Aviation Administration	Determination of No Hazard (Received on October 2, 2009 for select locations) Updated Determination (Received on December 9, 2011)
US Department of Defense	Consultation (Verbally advised that the Department of Defense has no objection but a portion of the project would need to remain at 400 feet height limit)
US Department of Homeland Security	Consultation
National Oceanic and Atmospheric Administration, National Weather Service/Radar Operations	Consultation
State	
California Department of Fish and Game	Streambed Alteration Agreement Incidental Take Permit (if required by CDFG)
Colorado River RWQCB Region 7	National Pollutant Discharge Elimination System (NPDES) Permit Stormwater Pollution Prevention Plan (SWPPP) Water Quality Certification/CWA Section 401
California Department of Transportation	ROW Encroachment Permit Transportation Permit
California Public Utilities Commission	Power Purchase Agreement (approved in January 2012) Approval of SDG&E Switchyard and Loop-in
Native American Heritage Commission	Consultation on Sacred Areas to comply with State requirements
State Historic Preservation Officer	NHPA Section 106 Consultation
California Energy Commission	Renewable Portfolio Standard Certification
Local	
Imperial County (for project facilities on non-federal land)	Conditional Use Permit and Variance (Turbine) ROW Encroachment Permit Transportation Permit Grading Permit

1.6 Interagency Coordination

The BLM and County seek comments from and work closely with other regulatory agencies that administer laws, regulations, and standards that may be applicable to proposed projects. These agencies may include as applicable, the USEPA, USFWS, ACOE, State Water Resources Control Board/RWQCB, SHPO, CDFG, and the ICAPCD.

The BLM has notified affected Indian Tribes regarding the proposed OWEF, is seeking their comments, and has invited them to consult on the project on a government-to-government basis. A summary of the tribal consultation process to date is provided in Section 5.2.3.

1.7 Document Organization

This document follows regulations promulgated by the Council on Environmental Quality (CEQ) for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508); the Department of the Interior's NEPA regulations, 43 C.F.R. Part 46; the BLM NEPA Handbook, H-1790-1; Sections 201, 202, and 206 of FLPMA (43 CFR 1600); the BLM Land Use Planning Handbook, H1601-1, and DOE's NEPA implementing procedures (10 CFR 1021). This EIS/EIR describes the components of and reasonable alternatives to the Proposed Action and environmental consequences of the Proposed Action and the alternatives. In addition, the document incorporates provisions of CEQA to allow the County of Imperial to use this EIS/EIR in its environmental review and approval process. This document also addresses DOE's Floodplain and Wetland Environmental Review Requirements (10 CFR 1022).

The EIS/EIR is organized as follows:

- **Chapter 1** provides general background on the Proposed Action; identifies the purpose and need for the Proposed Action; and identifies roles of the BLM, other agencies, and authorities regulating various aspects of the Proposed Action.
- **Chapter 2** describes the Proposed Action and draft land use plan amendment decisions to be made and the alternatives development and screening process conducted for the project. It also presents a range of reasonable alternatives that address the stated purpose and need for the Proposed Action and identifies and explains why alternatives were considered but not analyzed in detail.
- **Chapter 3** describes the affected environment (existing conditions) for 23 environmental components in the Proposed Action area.
- **Chapter 4** provides a comprehensive analysis and assessment of impacts (direct, indirect, and cumulative) and mitigation measures (by environmental component) for the Proposed Action and other alternatives (including three No Action Alternatives). It also describes other aspects of BLM compliance with NEPA procedures, including a description of unavoidable adverse impacts, the commitments of resources (40 CFR, 1502.16), as well as addressing CEQA requirements.
- **Chapter 5** identifies the persons, groups, agencies and other governmental bodies that were consulted or that contributed to the preparation of the EIS/EIR; describes Native American consultations and public participation; lists agencies, organizations, and individuals that submitted comments on the Draft EIS/EIR; and provides a list of EIS/EIR preparers.
- **Chapter 6** includes a list of acronyms and abbreviations used in the EIS/EIR.
- **Chapter 7** includes a list of project terms used in the EIS/EIR.
- **Chapter 8** provides the references used in preparing the EIS/EIR.
- **Chapter 9** provides an index for key words used in the EIS/EIR.
- **Appendices** contain information that supplements or supports the analyses in the body of the EIS/EIR.

1.8 Issues to be Addressed

The issues evaluated in this EIS/EIR include the physical, biological, cultural, socioeconomic, and other resources that have the potential to be affected by activities related to the Proposed Action and alternatives. The issues are:

- Air Resources;
- Climate Change;
- Cultural Resources;
- Environmental Justice;

- Lands and Realty;
- Mineral Resources;
- Multiple Use Classes;
- Noise;
- Paleontological Resources;
- Public Health and Safety;
- Recreation;
- Social and Economic Issues;
- Soil Resources;
- Special Designations;
- Transportation and Public Access;
- Vegetation Resources;
- Visual Resources;
- Water Resources;
- Wildland Fire Ecology; and
- Wildlife Resources.

Resources that do not exist in the project area and, therefore, do not warrant analysis in the EIS/EIR include:

- Livestock Grazing; and
- Wild Horses and Burros.

In addition, the Initial Study for the proposed OWEF prepared by the County of Imperial concluded that the project would not cause significant impacts related to various topics addressed in the CEQA Environmental Checklist. Therefore, those topics are not addressed in this EIS/EIR, and the reasons for concluding that no significant impacts would occur related to those topics are disclosed in the Initial Study, which was distributed with the NOP in December 2010. CEQA Environmental Checklist topics not addressed in this EIS/EIR include:

- Impacts to agriculture and forestry resources;
- Hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of a school;
- Location of project facilities on a listed hazardous material site (listed pursuant to Government Code § 65962.5);
- Placement of housing within a 100-year flood hazard area;
- Expose people to excessive noise levels from aircraft operations due to proximity to a public airport or public use airport;
- Displacement of substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere;
- Displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere;
- Physical impacts associated with the provision of new or physically altered governmental facilities for schools, parks, and other public facilities;
- Construction or expansion of recreational facilities that might have an adverse physical effect on the environment;
- Determination by a wastewater treatment provider that it has adequate capacity to serve the project; and
- Lack of permitted landfill capacity to meet the project's solid waste disposal needs.

2. PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction

This chapter of the EIS/EIR fully describes: (1) the OWEF proposed by Ocotillo Express LLC (the Applicant) to build an up to 465-megawatt (MW) wind energy project with 155 wind turbines and associated facilities; (2) a 137- turbine (315 MW utilizing all 2.3-MW turbines) alternative; and (3) a 105-turbine (315-MW utilizing all 3-MW turbines) alternative. Each of the action alternatives would amend to the California Desert Conservation Area Plan 1980, as amended, (BLM, 1999) (CDCA Plan). This chapter also describes: (i) the No Action Alternative (ii) two No Project Alternatives (one with and one without an amendment to the CDCA Plan); (iii) the alternatives development process more generally; and (iv) alternatives considered but eliminated from detailed analysis.

Alternatives considered in the EIS/EIR are based on issues identified by the BLM as well as comments received during the public scoping process. Both NEPA (40 CFR 1502.14) and CEQA (15126.6) require consideration of a reasonable range of alternatives, usually defined as those which technologically and economically feasible (not speculative) alternatives, while also responding to the purpose of and need for the proposed project.

This document provides information to the authorized officer to make the following decisions:

- Should the proposed ROW grant be issued as applied for, issued for a modified project, or denied?
- Should the CDCA Plan remain undesignated, should the CDCA Plan be amended to designate the area as unsuitable for wind energy development, or should the CDCA Plan be amended to designate the project area as suitable for such development.

The Applicant for the wind energy facility provided technical information about the Proposed Action in this chapter. All numbers referring to land disturbance, equipment, schedule, mileage, and workforce are based on the most up-to-date engineering available from the Applicant and generally represent conservative estimates for purposes of analyzing impacts. The numbers may change based on final engineering and permit requirements for the project components. The Applicant's information was provided primarily in the Draft Plan of Development (POD) for the OWEF submitted to the BLM in October 2010 (OE, 2010). More detailed information has been provided from that time through January 2012.

2.1.1 Alternatives Development and Screening

This section outlines the process used by the BLM to develop the alternatives. Alternatives considered by the Applicant and the BLM along with those suggested by the public during the scoping process were evaluated using the following NEPA/CEQA criteria and requirements:

- Does the alternative fulfill all or most of the purpose, need, and objectives identified in Chapter 1 of the EIS/EIR?
- Does the alternative avoid or reduce effects to human/environmental resources associated with the Proposed Action, or, conversely, would the alternative create significant effects potentially greater than those of the Proposed Action?

- Is the alternative feasible to construct, operate, maintain, and decommission? Are there any conflicts between the alternative and the objectives of federal, regional, State and local land use plans, policies or regulations for the area concerned?

Alternatives that met all of the criteria listed above were carried forward for analysis and are detailed in Sections 2.3 and 2.4. Those that did not meet the criteria were eliminated from further analysis and are described in Section 2.7, along with the reasons for elimination.

2.1.2 Overview of the Alternatives Considered in Detail

Features common to all action alternatives—phasing of development, proposed CDCA Plan amendments, project components, and construction methods—are detailed in this section. Project features and construction methods listed in this section will serve as the basis of the environmental impact analysis in Chapter 4.

The three full action alternatives, one no action alternative, and two no project alternatives, which are described in detail in Sections 2.3 through 2.5, are as follows:

- Alternative 1 - 155 Wind Turbine Generators Proposed Action Alternative (up to 465 MW) with Land Use Plan Amendment;
- Alternative 2 - 137 Wind Turbine Generators Alternative (315 MW) with Land Use Plan Amendment;
- Alternative 3 - 105 Wind Turbine Generators Alternative (315 MW) with Land Use Plan Amendment;
- Alternative 4 - No Issuance of a ROW Grant and No Land Use Plan Amendment (No Action);
- Alternative 5 - No Issuance of a ROW Grant with Land Use Plan Amendment to Identify the Area as Unsuitable for Wind Energy Development Project; and
- Alternative 6 - No Issuance of a ROW Grant with Land Use Plan Amendment to Identify the Area as Suitable for Wind Energy Development Project.

With Alternative 4, none of the project components would be built and there would be no amendments to the CDCA Plan. This alternative is equivalent to the No Project Alternative under the CEQA (Section 15126.6(e)) and the No Action Alternative under NEPA. With Alternatives 5 and 6, none of the OWEF components would be built (No Project), but an amendment to the CDCA Plan would identify the project site as either unsuitable or suitable for wind energy development.

It is possible that not all of the wind turbine locations analyzed as part of Alternatives 1, 2, and 3, above, will be approved. The Record of Decision to be issued the BLM may result in either the denial or approval of the proposed project, but could also result in the approval of a different number of wind turbines than described in Alternatives 1, 2, or 3, provided that the approved configuration is within the range of alternatives analyzed in this Final EIS/EIR. Based on information developed during the Section 106 process for the OWEF and comments received on the Draft EIS/EIR, the Applicant proposed that BLM consider a new project configuration that eliminates 43 of the turbines proposed under Alternative 1 in order to further reduce the effects of the OWEF on cultural resources ("Refined Project"). Under the Refined Project configuration, only 112 wind turbines generators would be approved and installed. Under the Refined Project, those 112 turbines would be located on turbine sites selected from a pool comprised of only 118 of the 155 turbines sites evaluated under Alternative 1 (i.e., 112 installation sites plus 6 alternate sites). These changes would result in a project similar in size to Alternative 3. A map of the proposed 112 wind turbine configuration, plus the 6 alternative turbine sites (see Figure 2.1-6 in Appendix A). As explained below, the BLM determined that this new configuration did not require a new alternative to be analyzed in this EIS/EIR because the 112-turbine configuration simply represents a subset of the turbine sites already presented and analyzed by the BLM in the Draft EIS/EIR, and therefore, the impacts associated with the installation and operation of wind turbines at those sites have already been disclosed and analyzed this EIS/EIR.

2.1.3 Features Common to all Alternatives

The action alternatives have a common description of equipment, systems, processes, resource inputs, operations, closure plans, and general location. To avoid redundancy, this section presents a single project description that identifies the elements common to all alternatives and then separately identifies the elements unique to each alternative.

2.1.3.1 Structure and Facilities

Facilities for the proposed OWEF would consist of wind turbine generators (WTGs), up to three 80 meter high meteorological towers, an electrical collection system for collecting the power generated by each WTG, a fiber optics communications system, an electrical substation and control room, access roads, an operation and maintenance (O&M) building, a utility switchyard operated by SDG&E, and an observation tower.

Wind Turbines

Since wind turbine technology is continually improving and the cost and availability of specific types of turbines vary from year to year, a representative range of turbine types that are most likely to be used for the proposed OWEF is included below in Table 2-1. The diameter of the circle swept by the blades will be no more than 371 feet (113 meters). If the maximum number of 155 turbines (Proposed Action) is constructed, a total rotor swept area of no more than 1,586,810 meters (m^2) (392 acres) would be utilized. Hub heights and rotor diameters (RD) for the turbines may have slight variations, but for purposes of analysis would not exceed the 3.0-MW turbine specifications. Figure 2.1-1 presents a schematic illustration of the proposed turbine models. Technical/physical specifications for the 3.0-MW Siemens have been used for this EIS/EIR's impact analysis, ensuring that it reflects the most conservative estimate of potential turbine-related impacts.

Table 2-1. Wind Turbine Specifications

Turbine	Hub Height	Rotor Diameter	Total Height	Rated Capacity Wind Speed [Rotations per Minute (RPM)]	Rotor Speed (RPM)	Tower Base Diameter
2.3/3.0 MW Siemens	262.5 feet	331.4/371.0 feet	428.1/448 feet	13 rpm	6-16 rpm	14.8 feet
1.6/2.75 MW GE	262.5 feet	328.1/351.0 feet	426.5/438 feet	13.5 rpm	14.8 rpm	14.1 feet

Towers

The towers would be a tapered tubular steel structure manufactured in three or four sections depending on the tower height, and approximately 15 feet in diameter at the base. The towers would be painted white per Federal Aviation Administration (FAA) requirements. A service platform at the top of each section would allow for access to the tower's connecting bolts for routine inspection. A ladder inside the structure would ascend to the nacelle to provide access for turbine maintenance. The tower would be equipped with interior lighting and a safety glide cable alongside the ladder. The towers would be fabricated and erected in sections.

Nacelle

The nacelle houses the main mechanical components of the WTG, the drive train, gearbox, and generator. The nacelle would be equipped with an anemometer and a wind vane that signals wind speed and direction information to an electronic controller. A mechanism would use electric motors to rotate (yaw) the nacelle and rotor to keep the turbine pointed into the wind to maximize energy capture. An enclosed steel-reinforced fiberglass shell houses the nacelle to protect internal machinery from the elements.

Hub

The hub attaches the blades to the rotor shaft and is usually made from a large iron casting. It sits on the front side of the nacelle and is covered by a composite nose-cone structure to streamline the airflow and protect the equipment. The hub also contains the mechanisms that allow the blades to pitch in response to wind, temperature, and air density conditions.

Blades/Rotor

Modern wind turbines have three-bladed rotors. The diameter of the circle swept by the blades would be no more than 371 feet. If the maximum number of 155 turbines (Proposed Action) is constructed, a total rotor swept area of no more than 1,586,810 square m^2 (392 acres) would be utilized. Generally, larger WTGs have slower rotating blades, but the specific RPM values depend on aerodynamic design and vary across machines. Based on the turbines considered, the blades would turn at no more than 16 RPM.

Turbines would be equipped with a braking system to stop the rotor. The braking system is designed to halt the rotor under all foreseeable upset conditions. The turbines also would be equipped with a parking brake to keep the rotor stationary while maintenance or inspection is performed.

Controller

Each turbine would be equipped with a computer control system to monitor variables consisting of wind speed and direction, air and machine temperatures, electrical voltages, currents, vibrations, blade pitch, and yaw (side to side) angles. In addition to monitoring, a primary function of the control system would be nacelle and power operations. Nacelle functions include yawing the nacelle into the wind, pitching the blades, and applying the brakes, if necessary.

Power operations controlled at the bus cabinet inside the base of the tower include operation of the main breakers to engage the generator with the grid as well as control of ancillary breakers and systems. The control system would always be in operation to ensure that the machines operate efficiently and safely.

Supervisory Control and Data Acquisition System

Each turbine would be connected via fiber optic cables to a central Supervisory Control and Data Acquisition (SCADA) system that would be owned by the Applicant. The SCADA system allows for controlling and monitoring individual turbines and the wind plant as a whole from a central host computer or a remote personal computer. In the event of problems, the SCADA system can also send signals to a fax, pager, or cell phone to alert operations staff. The SCADA system would also be connected to the California Independent System Operator (CAISO) and San Diego Gas and Electric (SDG&E), through a third party telecommunications provider, whose system would need to extend to the control room of the Proposed Action's substation.

Transformer

A step-up transformer would be used at each WTG to boost voltage to the appropriate utility distribution level, usually 25 kilovolt (kV) or 34.5 kV. This boost is necessary because the low-voltage power generated by the WTG (600 to 1,000 Volts) is not suitable for power transmission. The transformer would either be contained within the WTG unit itself or would be pad-mounted next to the base of the WTG. Electrical cables in an underground collection system would transmit the electricity from the transformer to the Applicant's substation.

WTG Foundation/Pad

A steel-reinforced concrete foundation would support each wind turbine. Up to 155 foundations (Proposed Action) would be constructed. Each turbine would require a maximum 400-foot diameter area (2.9 acres) temporary construction area, a permanent 60-foot by 100-foot crane pad, and a permanent 75-foot diameter area (0.3 acre) for the tower within the temporary construction area.

Operation and Maintenance Facility

A 3.4-acre O&M facility would be located in the central portion of the proposed OWEF site (Figure 2.3-1). The O&M building and yard would be constructed to store critical spare parts and provide a building for maintenance services. The facility will include four permanent administrative, maintenance and storage building structures, in addition to control buildings for the substation and switchyard. The four permanent buildings include an office building, a maintenance/storage garage, a biological monitoring facility, and oil storage shed.

A concrete slab foundation would be required for the O&M facility, and the area immediately surrounding the building would be covered with gravel for vehicle parking. Any area within the fence not covered by concrete would be covered with gravel to minimize erosion and surface runoff. A permanent 7-foot-high security fence surrounding the O&M facility and downward directional motion-detected lighting to minimize light pollution would be installed. This chain link fence would have an open weave to enable viewing through to the background landscape. Colors for the building and fence would be selected in consultation with BLM.

The potential exists for on-site, human-caused fires to occur both during the project construction and operation periods due to vehicle activity fumes, storage of flammable liquids, fueling practices, and smoking. All workers will be trained to prevent fire emergencies and to deal with fires quickly and effectively if they do occur. Crews would carry fire prevention equipment and consult with the fire department and the BLM during high fire danger. The Imperial County Fire Department requires that a separate 10,000-gallon (minimum) water supply be provided at the O&M facility for fire suppression.

A 50 ft. observation tower would be constructed at the O&M facility and would be the control room for the onsite biologist to have a commanding view of the entire site with 360-degree vision and be able to monitor the data feeds from the radar, video tracker and radio telemetry feeds in real time to monitor eagle activity.

Electrical Collection System

The proposed OWEF would include the construction of up to twenty-three 34.5-kV circuits connecting into a 500-kV transformer and substation currently proposed to be located at the central part of the proposed OWEF site adjacent to the approved SDG&E Sunrise Powerlink (SPL) 500-kV transmission line (Figure 2.1-2). The interior collection lines connecting one turbine to the next and to the proposed OWEF substation would be buried underground and generally adjacent to the interior maintenance roads. The burial depth of the proposed underground 34.5-kV collector circuits is four feet. Above-ground components to the electric system would include pad-mounted transformers with oil containment protection alongside each turbine, the fenced main substation/utility switchyard, and the overhead transmission line connecting the utility switchyard to the new 500-kV transmission line. Approximately 83 miles of fiber optic cables would be placed underground in trenches either adjacent to access roads or, in some cases, running across country within the ROW.

Vaults and splice boxes would be placed underground at locations as needed. Several below-ground junction boxes would be used in various locations adjacent to site access roads.

Sunrise Powerlink 500-kV Transmission Line

The proposed OWEF would connect to the approved SDG&E SPL 500-kV transmission line scheduled for completion in February 2012 across the middle of the proposed OWEF site (Figure 2.1-2), inside the 31.7-acre parcel adjacent to the proposed 500-kV transmission line. The point of interconnection would be adjacent to the fifth permanent structure, a proposed substation. A new substation, electrical collection system, pad-mount transformer vaults (if used), and below-ground junction boxes would be installed. The SDG&E interconnection facilities would consist of a 500-kV switchyard and loop-in of the Sunrise Powerlink. The proposed switchyard would be located on approximately 23 acres adjacent to the OWEF substation on the west. The switchyard facility may require asphalt pavement for the roads 30-foot wide roads, which are interior to the switchyard. A hydrologic and hydraulic study for the area around the interconnecting facilities demonstrates that 500-kV switchyard needs to be protected against the storm water runoff from the 100-year storm event. The protection would include a 3-foot to 5-foot tall earthen protection berm around the southern and eastern sides of the 31.7-acre parcel.

The Sunrise Powerlink loop-in would require replacement of an existing SPL steel lattice structure with four steel foundation poles (See Figure 2.1-3). Modifications to this design may occur during final engineering. Access for construction, operation, and maintenance of the loop-in would utilize existing spur roads off the existing Sunrise Powerlink and Southwest Powerlink access road to the extent practicable. New spur roads may be graded for access during construction, operation, and maintenance of the new steel foundation poles. Any spoil from the Sunrise Powerlink structure loop-in foundation work would be deposited on the OWEF switchyard pad within the fenced area. Construction of the loop-in may include use of helicopters.

Project Substation

A 2.1-acre substation would be located adjacent to the interconnection utility switchyard within the approximate 31.7-acre facility (Substation, Switchyard and Staging Area) area (Figure 2.1-2). The substation includes a control building which would likely be a modular design, constructed of prefabricated steel. The estimated dimensions are 15 feet by 42 feet. Major equipment to be installed inside the control building consists of relay and control panels, alternating current and direct current load centers to provide power to equipment inside and outside the control building, a battery bank to provide a back-up power supply, a heating/cooling system to prevent equipment failure, and communications equipment for remote control and monitoring of essential equipment.

Steel structures would be erected on concrete footings to support switches, electrical buswork, instrument transformers, lightning arrestors, and other equipment, as well as termination structures for incoming and outgoing transmission lines. Structures would be fabricated from tubular steel and galvanized or painted a BLM-approved color to blend in with predominant vegetation and soil types. Structures would be grounded in accordance with industry standards.

Major equipment would be set by crane and either bolted or welded to the foundations to resist seismic forces. Oil spill containment basins would be installed around the oil-filled transformers. Smaller equipment, including air switches, current and voltage instrument transformers, insulators, electrical buswork, and conductors would be mounted on the steel structures.

Control cables would be installed between the control building and station equipment through underground conduits and a concrete trench system. After the cables are connected, the controls would be set to the proper settings, and all equipment would be tested before the substation is energized.

The substation would require a stand-by auxiliary power source. The power source would be propane or a natural gas generator between 50 and 75 kW of rated power capacity.

Utility Switchyard

A new approximately 23.5-acre, 500-kV interconnection switchyard for SDG&E would be constructed adjacent to the planned 500-kV transmission line. The interconnection switchyard would include circuit breakers, disconnects, switches and associated structures, buildings, and relay protection. The 500-kV switchyard would be designed for a breaker and a half configuration. However, the initial installation would consist of a 3-element ring bus. The switchyard design would allow for the connection of an additional 500-kV and 230-kV lines should this become necessary in the future. Construction, operation, and maintenance access for the switchyard would utilize the Ocotillo Substation access roads provided by the OWEF. The construction process for the interconnection switchyard would be similar to the project substation detailed above; however, structure clearances would be larger since the entire yard is 500 kV.

The utility switchyard would be owned, operated, and may be constructed by SDG&E, who would need to have a ROW grant from BLM for the acreage on which the utility switchyard and SPL Loop-in would be located. A 150-foot overhead transmission line would connect the switchyard and the proposed substation.

The proposed OWEF may have a temporary interconnection to the Imperial Irrigation District (IID) electric distribution system for purposes of testing and commissioning turbines prior to completion of the project substation and switchyard. Such temporary interconnection would occur at a point where the project's underground collection system is adjacent to an IID distribution line. A temporary step-down transformer, electric protection and associated temporary equipment would be installed at that interconnection point, along with the short amount of temporary cabling required to make the interconnection. This temporary equipment would all be located within a corridor which will already have been disturbed for installation of roads and collection system, and would be removed after energization of the permanent project substation and switchyard.

Utility Routing

The public and private utilities that would serve the project include electrical service from Imperial Irrigation District (IID) and telecommunications from AT&T. Each utility would be routed to the O&M facility and substation from existing facilities near Ocotillo. For AT&T facilities which originate outside the project boundary, the utilities would be routed through Imperial County public road ROWs. Permitting for these facilities would be obtained from the Imperial County Public Works and BLM as necessary. The AT&T line is insulated copper wire buried 3 feet deep. Within the project boundary, the AT&T line would be routed to the O&M facility and substation underground through current proposed road and collection corridors.

Two options exist for routing the IID electric power lines to the O&M facility and substation. Option 1 follows Highway S-2 from where the IID power lines currently terminate at the County Community Center. The extension of the IID line would be within the County public road ROW and may be constructed on overhead power poles or underground. Where the existing collector corridor intersects with Highway S-2, the electric lines would be constructed underground and would follow the collection line corridor already proposed for the project. The routing for Option 2 starts at the location where IID electric utility lines currently intersect with the proposed collection corridor near the north I-8 Frontage Road. At this location, electrical utilities would be routed to the O&M facility and substation underground through the proposed collector corridor within both the project boundary and owned/leased private land. Since utilities would be routed into the site underground through already proposed road and collection corridors, no additional disturbance is associated with these utilities beyond those described in this EIS/EIR in connection with the proposed road and collection corridors.

Staging and Storage Areas

The 10-acre staging and 6.5-acre storage areas would be used to stage turbine components, construction equipment, and construction materials. Steel construction containers would be used to securely store specialized equipment. The staging and storage areas would be placed strategically throughout the project site. After construction, all temporary disturbances and construction containers associated with the staging and storage areas would be removed and the sites restored to natural conditions (see Section 2.1.3.2.10 for a discussion of restoration procedures).

As part of the construction of the SDG&E Sunrise Powerlink, a 29-acre temporary construction laydown yard has been constructed adjacent to the OWEF project boundary. The OWEF is currently working with SDG&E and the California State Lands Commission to evaluate if this same laydown yard might be available to OWEF construction under a sublease agreement under SDG&E's current State Lands Commission lease agreement. The Applicant understands that the sublease agreement would be subject to approval by the State Lands Commission and the conditions of the Sunrise Powerlink use and mitigation agreements. The purpose of using this SDG&E laydown yard is to reduce 12 acres of desert land disturbance associated with the OWEF temporary construction laydown yard, which is located less than a mile away from the SDG&E laydown yard. The decision to use the laydown yard would also be subject to BLM and County of Imperial approval.

Meteorological Towers

The proposed OWEF proposes installation of up to three permanent meteorological towers within the proposed OWEF site. The permanent meteorological towers would be 262.5 feet high, self-supporting monopole structures. Electricity for the meteorological towers will be supplied from a nearby turbine and access to the tower will be via a 20-foot permanent access road. The locations of these towers are presented on Figure 2.3-1. The Applicant has currently installed five temporary meteorological towers, which would be removed prior to or during construction. These temporary towers are 196.9 feet high, guyed monopole structures.

Safety

The proposed OWEF would utilize WTGs designed with several levels of built-in safety measures to comply with Occupational Safety and Health Administration (OSHA) and American National Standards Institute (ANSI) requirements. Personnel located in the O&M facility would monitor the WTGs and a central SCADA System would remotely control the WTGs, and would be connected to the turbines via a fiber optic communications network.

Each WTG would be equipped with a lightning rod atop the nacelle. The anemometer, wind vane, other sensitive parts in the nacelle, and the controller are protected from noise or surge spike due to lightning by an upgraded shielded protection system. Each of the blades would also have lightning shielding to protect the blades from damage caused by lightning. The WTG-mounted protection would be tied to a bare copper grounding cable installed around the foundation for lightning and electrical protection. A fire detection system within each WTG would interface with the main controller and the SCADA System. Ion-based smoke detectors would be placed in all important electrical panels and connected to individual digital inputs on the wind turbine control system. Additionally, both tower and complete nacelle covering are made of steel and are fully enclosed and as such limit a possible fire.

Security guards will be in place 24 hours a day, 7 days a week, throughout construction when the risk of copper theft is highest due to open cable reels. Once the project is constructed, all facilities will be locked including turbines, substations, and spare parts storage facilities. Cabling between turbines is buried well below grade and theft is unlikely. The system controls monitor for open and short circuits as would occur if this cabling was disturbed.

Installation of the WTGs would be required to comply with FAA Advisory Circular 70/7460-1, Obstruction Lighting/Marking, requirements. The Applicant would file form 7460-1, Notification of Proposed Construction or Alteration, with the FAA for the WTGs. The FAA would determine the appropriate lighting required for the proposed OWEF and the appropriate exterior finish for the WTGs for daylight marking to ensure safety. Subject to approval by the FAA, the Applicant intends to install a system that will activate the lights only when aircraft approaches the project area, in order to minimize light migration.

Roads

There would be up to 42 miles of new, permanent access and maintenance roads constructed to provide access and circulation within the proposed OWEF site (Figure 2.3-1). The proposed OWEF would include a network of 20-foot wide permanent roads (16 foot roadways with 2-foot wide shoulders on each side) to provide access to each turbine location, the utility switchyard, loop-in structures and the project's

O&M building (during construction such roads will be up to 36 feet in width). These roads will consist of compacted native material, but may also require approximately 4 to 6 inches of aggregate and/or geo-synthetic material to provide the soil strength needed for construction. The disturbed areas outside the final roadway width would be graded and compacted for use during construction, and then decompacted and stabilized at the conclusion of project construction.

Internal access road layout would incorporate existing BLM standards regarding road design, construction, and maintenance such as those described in the 2005 Wind Energy PEIS and Record of Decision (ROD) (BLM, 2005), BLM 9113-2 Manual (BLM, 1985), and the Surface Operating Standards for Oil and Gas Exploration and Development (Fourth Edition 2006) (i.e., the "Gold Book"), as well as BLM Visual Resource Management Manuals.

The planned access route into the project site would include the Imperial Highway (S2), a temporary road north of I-8 and adjacent to the railroad, and/or the existing by-pass road north and east of the community of Ocotillo. The Applicant has applied for a ROW to use the existing by-pass road, and is arranging a road-use agreement with the private mining companies who also have ROWs for the by-pass road. In the event such an agreement is unavailable, a combination of existing roads and newly-constructed roads on the BLM ROW would be utilized for construction and operational access needs. An existing unpaved road exists at the end of the Evan Hewes Highway which would be used by the proposed OWEF during construction. This road would be improved to access road standards described above.

Temporary Work Areas

A 400-foot diameter temporary work area for each turbine site would be used for the crane pad, equipment laydown, and other construction-related needs. Within the WTG temporary work area, a crane pad is required for supporting the large tower erection crane. The crane pad will consist of a compacted native soil or compacted aggregate base gravel area with approximate dimensions of 60 by 100 feet and a maximum grade of 1 percent. The crane pads will remain in place following construction for potential future maintenance at the tower. The topsoil from the crane pads, if any, would be used at adjacent locations during restoration activities.

Fencing/Security

The security fence surrounding the substation/utility switchyard, the O&M building, and meteorological towers would be the only permanent fencing associated with the proposed OWEF. The type and height of this security fence, and the need for temporary security fencing around temporary construction areas, would be determined based on an assessment of risk before the start of construction. The fences for the substation/utility switchyard, O&M building, and meteorological towers would remain locked whenever these facilities are unattended. During the construction phase, access roads would have gates or signs installed for safety reasons, as necessary and in coordination with the BLM, to control public access to the site. However, access would be preserved for private landowners and BLM-permitted uses. Adaptive management based on results of resource-specific field surveys would be implemented to protect environmental resources to the extent feasible. Protective fencing may also be utilized to limit potential disturbances.

If fencing is installed during any O&M activity, the design of the fencing shall be done in coordination with the wildlife agencies. Furthermore, the Biological Monitor(s) shall be responsible for monitoring to ensure that all fencing remains intact and shall monitor for any disturbance outside of the fencing. It shall also be the responsibility of the Biological Monitor(s) to determine if any increased impacts are occurring to flat tailed horned lizard (FTHL) by providing fence perches for FTHL predators.

Motion activated safety and security lights will also be installed at the substation, interconnection switchyard, and O&M buildings. Directional lighting measure will be employed to minimize light migration into the night sky and in non-critical areas. A lighting designer will design the lighting system to meet the applicable security and safety standards.

Concrete Batch Plant/Laydown Area

A 12-acre site would be located on site to install a temporary batch plant for preparing and mixing the concrete used for the foundations for the WTGs, the transformers at the substation, the O&M building, and other proposed facilities (Figure 2.3-1). This temporary batch plant site would also contain a laydown and parking area during construction. The temporary batch plant would be cleared of all vegetation, graded, and compacted. Prior to installation of the temporary batch plant facilities, the area would be covered with gravel as required to support the circulation of trucks and other equipment. The temporary batch plant complex would consist of a mixing plant, areas for sand and gravel stockpiles, an access road, and truck load out and turnaround areas. The temporary batch plant itself would consist of cement storage silos, water and mixture tanks, gravel hoppers, and conveyors to deliver different materials. Any temporary water-holding basins to be used for concrete mixing would be fenced with chain link and designed to minimize and avoid attracting wildlife.

During construction, materials would be taken from stockpiles and dumped into hoppers with front-end loaders where they would be mixed together in the mixing plant and then loaded into ready-mix trucks in the truck loading area. The concrete would be delivered to each turbine site, the substation and O&M building, and other locations as needed. Concrete ready-mix trucks would be washed out at designated locations designed for that purpose. At those locations, all effluent would be contained and refuse concrete would be recycled. Following completion of construction, all components of the temporary batch plant would be demobilized and the site would be restored to BLM standards (see Section 2.1.3.2.10).

Water/Wastewater

Approximately 50 acre-feet of water will be needed for construction including batching concrete, road construction, and dust control. Approximately 6.5 acre-feet will be needed for turbine foundations, foundation of the O&M building, and foundations within the substation and interconnection switchyard; and approximately 43.5 acre-feet are expected to be required for road maintenance and dust suppression. The current plan is that water will be purchased from a private water well owner near Pine Valley and transported by truck approximately 50 miles (one-way) to the batch plant/laydown area. Investigation into alternative sources of water is ongoing, but in no event will water from the Ocotillo-Coyote Wells Sole Source Aquifer (SSA) be used. A Water Supply Assessment (Appendix P) has been conducted for use of the Pine Valley well, which confirms that the project's planned usage will not adversely impact the aquifer that supplies that well.

The following summary provides a general discussion of the additional water sources that continue to be evaluated for the project's construction and operational water supply. All water supplies discussed would be trucked into the project site.

City of Brawley - treated municipal wastewater. The City of Brawley, located approximately 45 miles northeast of the community of Ocotillo, has provided written confirmation to the project Applicant that the City is able to provide up to 250,000 gallons of water per day for the period commencing December 2011 through December 2012 (City of Brawley, 2011). Depending on the final construction schedule for the proposed Project, confirmation of water availability beyond December of 2012 may be provided in writing by the City of Brawley to the Applicant.

Vulcan Materials - Dixieland Mine groundwater supply well. Water pumped from an existing supply well at the Dixieland Mine, east of the project site, may be purchased from the Vulcan Materials Company, which operates the well under a Conditional Use Permit (CUP) issued by Imperial County for up to 200 acre-feet per year (afy). Use of Dixieland Mine groundwater for the project would not increase the maximum allowable extraction rate of 200 afy from this well and therefore, existing conditions would persist under the proposed OWEF, with respect to groundwater extraction rates at this well.

Imperial Irrigation District (IID) - West-Site Canal water. Water may be purchased from the IID and transported by truck from canals near Dixieland, approximately 20 miles to the east of the OWEF site. The Applicant has contacted the IID about obtaining raw canal water from the West-Side Canal for the project, and IID indicated that approximately 25 afy of canal water may be obtained through the Interim Water Supply Policy (IWSP) for Non-Agricultural Projects, which designates up to 25,000 afy of water for potential Non-Agricultural Projects within IID's water service area (Pattern, 2011). Use of IID canal water outside of the IID service area would require approval from the San Diego County Water Authority (SDCWA). This issue is further discussed in Section 3.20.

Either one temporary pond or up to ten 12,000-gallon temporary water storage tanks may be installed to support these water needs. If used, the temporary pond would be constructed at the temporary laydown area. The dimensions of the pond would be 150-foot wide, 150-foot long, and 8-foot deep. It would also include a water-tight synthetic liner and a 7-foot tall security fence around the perimeter of the pond. The excavated material from the pond would be used to build up a berm around all four sides. This temporary pond would be fully removed with the restoration of the laydown area. If temporary storage tanks are used in lieu of the pond, the tanks would be positioned throughout the project site inside road or turbine assembly disturbance corridors in order to improve access to water for dust control. The biological technical report of the EIS/EIR assumes that a covered water supply would be located at the batch plant/laydown yard and also accounts for the use of temporary storage tanks since disturbance has been accounted for in the impact analysis and mitigation acreage.

During operation of the proposed OWEF, a maximum of 28 to 30 full-time employees is assumed to be present on the proposed OWEF site daily. Water supply for the O&M building during the project's operational phase will be purchased from a local vender and trucked to the site. This ongoing water usage for drinking water and toilets is estimated to be approximately 0.19 acre-feet per year. Drinking water will be supplied from a regional commercial drinking water bottling company. Water for toilets and flushing will be stored in a storage tank at the O&M facility. The Imperial County Fire Department will also require that a separate 10,000-gallon water supply at a minimum be provided at the O&M facility for fire suppression. The source of the water for toilets and fire suppression may be the Pine Valley location or one of the alternate locations discussed above; it is anticipated that the same water source(s) would be used for construction, operation and maintenance, and decommissioning of the project.

Waste water from toilet flushing at the O&M building would be treated on site with an onsite septic tank and absorption field. The estimated maximum size of septic tank would be 1,000 gallons. The maximum disturbance area for the septic system and absorption field is 3,400 square feet. The septic tank and absorption field would be located adjacent to the O&M building, at least 10 feet from the edge of the building foundation, on either the northwest or southeast side of the building.

The septic system would be coordinated with and the design reviewed and approved by Imperial County and would include features to avoid any adverse impacts to the Coyote Wells Valley Groundwater Basin. These features may include locating the system away from surface water drainage features, scour protection over the absorption field, monitoring wells to inspect against clogging in the absorption field, large absorption area to maximize the area of biological treatment, and/or regular maintenance by a licensed waste management contractor. Weed infestations will be monitored and mitigated at the absorption field according to the Weed Management Plan. The septic tank will be pumped, waste transported off site, and properly disposed of by a licensed waste treatment contractor on a regular basis as required for safe operation.

Waste and Hazardous Materials Management

All construction related waste will be kept within designated areas within the temporary use area(s) prior to collection and transport to a final landfill destination. Materials that can be recycled will be stored and transported separately. The Applicant will coordinate with local landfills prior to commencement of construction.

Hazardous materials are typically limited for a project of this nature. However, the following materials are anticipated to be used or produced during construction and operation of the proposed OWEF:

- Fuel (Diesel and Unleaded Gasoline) for construction equipment and vehicles,
- Lubricants and mineral oils,
- Cleaners, industrial material, and
- Concrete effluent.

These substances will be contained and disposed of according to local, State, and Federal regulations. In addition, the Applicant will work with the BLM and other appropriate agencies to implement a Hazardous Materials Management Plan.

Concrete ready-mix trucks will be washed out at specific containment areas designed for that purpose. At those locations, all effluent will be fully contained and refuse concrete will be reclaimed after all the water has evaporated.

2.1.3.2 Construction

2.1.3.2.1 Construction Sequence and Equipment

Schedule and Workforce

Construction would begin with installation of civil improvements, including site laydown areas for turbine and tower deliveries, construction of the access/maintenance roads, installation of the underground runs for electrical cabling, construction of turbine/transformer foundations, and the preparation of crane pads for erection of the turbines. The installation of electrical hardware (including cabling), construction of the main substation, SDG&E utility switchyard and loop-in, placement of the pad mount transformers, construction of the maintenance facility, and erection of the turbines would come next; some of these activities would proceed in parallel with the civil improvements. Lastly, mechanical completion of all wind turbine generators, substation and other facilities followed by commissioning and testing of each turbine, the substation, utility interconnection, testing of the electrical system, and restoration of the temporary construction areas, laydown areas and turbine crane pads would occur.

The proposed OWEF would be constructed in one phase. Construction of the wind generation facility is anticipated to be completed over a period of 11 months, as described below:

- Civil work (roads, underground electrical, foundations) is expected to commence in the 1st quarter of 2012
- Balance of plant electrical/civil works is expected to commence during the 1st quarter of 2012
- Turbine deliveries are expected to commence during the 3rd quarter of 2012
- Turbine commissioning, testing, and commercial operation is expected to commence and complete during the 4th quarter of 2012.

Construction would typically occur during daylight hours (6- to 10-hour days) from Monday through Saturday. However, to meet schedule demands, it may be necessary to work early morning, evenings, or even nights and/or Sundays during certain phases of construction (e.g. during the foundation concrete hours to take advantage of the cooler times of the day, and during the turbine erection period to take advantage of the times the wind speed is below the maximum safe working conditions, etc.)

It is anticipated the majority of construction personnel would be local residents of the Imperial Valley; other personnel from outside the area will likely stay in hotels and rental properties in El Centro, California or other communities in the Imperial Valley. During construction, potable water and sanitary facilities would be provided to support the construction crews. Mobile construction trailers and temporary portable toilet facilities would be available at the laydown area and O&M building. Bottled water from a commercial provider would be utilized and would be delivered to the site. A plan for employee transportation to and from the site would be completed prior to construction, which may include a plan for employee carpooling to minimize vehicle traffic to and from the site and reduce the area necessary for construction parking.

Materials and Equipment

Construction equipment would consist of standard construction equipment such as graders, bulldozers, excavators, trenchers, backhoes, cranes, forklifts, delivery trucks (including concrete), semi-trucks, pick-up trucks, and sport utility vehicles. The anticipated travel route for delivery of construction materials would be completed prior to construction.

Major facilities include wind turbine generators, access roads, and electrical collection and connection systems. Ancillary facilities include the O&M facility and observation tower, permanent substation and utility switchyard, temporary parking and storage laydown, temporary batch plant, rail unloading yard, sand and gravel source, and permanent meteorological towers.

2.1.3.2.2 Site Preparation, Surveying and Staking

Prior to construction, the limits of construction disturbance areas along roads, collection system, and at turbine locations would be clearly defined. These limits would be staked and flagged and other construction staking methods would be employed for the road alignment and turbine construction. Where necessary, the limits of the ROWs will also be flagged. All construction activities would be confined to these areas to prevent unnecessarily affecting sensitive areas. Stakes and flagging that are disturbed during construction would be repaired or replaced before construction continues. Stakes and flagging would be removed when construction and restoration are completed.

A full geotechnical investigation would be conducted at each turbine location prior to construction. Drill rigs associated with such investigation would stay on existing roads where possible or would follow the proposed road corridors to access each turbine location.

2.1.3.2.3 Site Preparation, Vegetation Removal, and Treatment

Vegetation would be removed from permanent facility sites, such as the O&M building and substation, utility switchyard and loop-in interconnection facilities, by blading and grading. Topsoil would be removed and stored where applicable and according to the BLM approved restoration plan. At other locations, such as along the temporary shoulders or in turbine assembly areas, where excavation is not required, vegetation would be removed by mowing or trimming where possible in order to maintain the roots of existing vegetation. Temporary disturbance sites would be restored to BLM specifications (see Section 2.1.3.2.10). Water and other palliatives would be regularly applied to roads and other dust sources during site preparation and construction.

2.1.3.2.4 Site Clearing, Grading, and Excavation

Clearing and grading would be necessary for new roads, turbine pads, O&M facility, substation, utility switchyard and loop-in interconnection facilities, and the batch plant/laydown area. Clearing and grading would be accomplished using bulldozers, road graders, or other standard earth-moving equipment. Excavation would be necessary for foundations and collection system construction and would be accomplished using large excavators, backhoes, and trenching machines. There would be no excess excavated material from project construction. Soil excavation (cut) and fill would be balanced. Soil excavated for roads would be used as fill for roads. The top soil component of the turbines excavation would be spread evenly around the base of the turbine to blend with existing grades. For the most part, the total area to be cleared of vegetation would be less than the temporary work areas requested to minimize erosion and avoid other disturbance-related impacts.

2.1.3.2.5 Gravel, Aggregate, Concrete Needs and Sources

Table 2-2 shows the expected locations for gravel, aggregate, and concrete needs for the project. This material includes road aggregate, water, cement, coarse aggregate, and sand (see Figure 2.3-1) for concrete foundation including wind turbine foundations, foundation at the O&M building, and the substation and interconnection switchyard.

New sources of sand and gravel within the project site or on BLM land in the area may be identified by a construction contractor and permitted through the BLM. Any new sand and gravel source will require biological and cultural resource clearance and the appropriate level of BLM NEPA analysis prior to utilization.

Table 2-2. Gravel, Aggregate, Concrete Needs and Sources

Material Description	Source Location	Estimated Quantity
Water (for concrete)	Near Pine Valley, CA	6.5 acre-feet
Coarse Aggregate	Ocotillo, CA	60,100 tons
Fine Aggregate (sand)	Ocotillo, CA	33,200 tons
Cement	Victorville, CA.	16,000 tons

2.1.3.2.6 Wind Turbine Assembly and Construction

Turbine construction will consist of foundation construction, tower and nacelle construction, blade erection, pad mount installation, miscellaneous mechanical and electrical installation, finish grading, installation of the rock ring around the outside of the tower, and restoration of the temporary disturbed ground and vegetation.

Turbine towers, nacelles, and blades are erected in three phases. The first phase includes installation of the tower base (lower level of three tower section) over the foundation anchor bolts. The tower base is leveled and high strength grout is applied in the space between the tower and the foundation. The second phase includes installation of the top two tower sections. The third phase includes installation of the nacelle and the full rotor assembly (including hub with three blades attached).

2.1.3.2.7 Electrical Construction Activities

The new SDG&E 500-kV transmission line that will cross through the central part of the site would be the interconnecting transmission line for the proposed OWEF. Wind turbine generator power will feed into a 34.5 kV underground electrical collector system which connects to the project substation then to a new SDG&E switchyard and transmission line loop-in.

2.1.3.2.8 Proposed OWEF Substation

Construction of the proposed OWEF substation would last approximately four to six months and would involve site preparation followed by structural and electrical construction.

Construction of the substation would begin with clearing vegetation and organic material from the site. The site would then be excavated to subgrade elevation. Structural footings and underground utilities, along with electrical conduit and grounding grid would be installed, followed by aboveground structures and equipment. A chain link fence would be constructed around the new substation for safety and security and to restrict unauthorized persons and wildlife from entering. The site would be finish graded, gravel surfaced, and reclamation would be completed to enhance the visual appearance of the substation.

Control buildings would be added to the substation; it is anticipated that these buildings would likely be constructed of prefabricated steel. There will be two control buildings, one for the proposed OWEF substation and one for the interconnect substation. The estimated dimensions of each would be 12 feet by 40 feet. Major equipment to be installed inside the control buildings consist of relay and control panels, alternating current and direct current load centers to provide power to equipment inside and outside the control building, a battery bank to provide a back-up power supply, a heating/cooling system to prevent equipment failure, and communications equipment for remote control and monitoring of essential equipment.

Steel structures would be erected on concrete footings to support switches, electrical buswork, instrument transformers, lightning arrestors, and other equipment, as well as termination structures for incoming and outgoing transmission lines. Structures would be fabricated from tubular steel and galvanized or painted a BLM-approved color to blend in with predominant vegetation and soil types. Structures would be grounded by thermally welding one or more ground wires to each structure.

Major equipment would be set by crane and either bolted or welded to the foundations to resist seismic forces. Oil spill containment basins would be installed around major oil-filled transformers and other equipment. Smaller equipment, including air switches, current and voltage instrument transformers, insulators, electrical buswork, and conductors would be mounted on the steel structures.

Control cables would be pulled from panels in the control building, through the underground conduits and concrete trench system, to the appropriate equipment. After the cables are connected, the controls would be set to proper settings, and all equipment would be tested before the transmission line is energized.

2.1.3.2.9 Interconnection 500-kV Utility Switchyard

The new 500-kV utility switchyard which may be constructed by SDG&E or by the Applicant, would be approximately 1,200 feet by 800 feet, including three 500-kV circuit breakers, six 500-kV disconnects, and associated structures, buildings, and relay protection. This would entail removing one tower and multiple steel pole structures. To accomplish the 500-kV switchyard loop-in, approximately 1,500 circuit feet of conductor and 36,000 feet of optical ground wire (OPGW) would be removed and approximately 2,500 circuit feet of conductor and 38,000 feet of OPGW would be installed. In addition, the generation tie from the point of interconnection at the new 500-kV bus to the participating transmission owner property line would need to be extended. This would include installing substation drops assuming a 400-foot span from the new utility switchyard rack to the property line and installing two 400-foot spans of shield wire with one dead-end each. The construction process for the utility switchyard would be similar to the proposed OWEF substation detailed above.

2.1.3.2.10 Aviation Lighting (Wind Turbines, Transmission)

Turbines would be lit as required by the FAA. Based on the FAA Obstruction Marking and Lighting Advisory Circular (AC70/7460-1K), no structural markings or alternative colors are proposed for the wind turbines. For nighttime visibility, a flashing red beacon would be mounted on the top of a select number of nacelles. Lights are not recommended to be placed on all turbines, so it is likely that only those turbines at each end of the array and approximately every half mile would have lights to mark the extent of the facility. The FAA is currently evaluating a new technology that would only activate the red beacon lights when an aircraft is approaching the site. If approved by the FAA, this "on demand" technology will be employed at this site.

The Department of Defense has requested that utilization of turbine lighting be compatible with military night-vision goggles. The proposed OWEF will comply with this request.

2.1.3.2.11 Site Stabilization, Protection, and Reclamation Practices

Upon completion of the construction phase of the proposed OWEF, all soils disturbed by temporary access roads and facilities would be reclaimed by stabilization and rehabilitation according to the site restoration plan approved by the BLM. The core feature of the stabilization and restoration plan would be minimizing disturbance areas to the most practical extent and preserving the root zones of existing vegetation (included in the Habitat Restoration/Revegetation Plan). Other features may include preservation of the top soil or desert crust, reseeding, replanting, fertilization, vertical mulching, and monitoring.

2.1.3.3 Operation and Maintenance

Approximately 17 full-time, year-round employees are expected, with an additional 10 temporary employees or contractors expected to be onsite for approximately 12 weeks per year. Five or six service vehicles would normally be utilized for O&M work activities, as field crews work and travel in pairs. These vehicles would be kept on site, and personnel would travel to the site in personal vehicles. Carpooling would be encouraged.

The computer control system for each turbine would perform self-diagnostic tests allowing a remote operator to ensure each turbine is functioning at peak performance. Routine maintenance activities consisting of visual inspections, oil changes, and gearbox lubrication would result in regular truck traffic on project access roads throughout the year. Project access roads would be graded as necessary to facilitate operations and maintenance.

Annual maintenance activities requiring the temporary shutdown of turbines would be coordinated to occur during periods of little or no wind to the extent possible, in order to minimize reductions in the amount of overall energy generation. Annual maintenance procedures would consist of inspection of wind turbine components and fasteners.

All equipment used in the operation of the proposed OWEF would be maintained and inspected regularly by authorized and trained facility staff. A complete schedule would be established before the start of operations.

The internal access roads built and used during construction would be maintained throughout commercial operations. These roads would be evaluated and graded as necessary to facilitate operations and maintenance. In addition to grading, the application of new gravel may be necessary to maintain road surfaces.

The planned access route into the project site would include the Imperial Highway (S2), a temporary road north of I-8 and adjacent to the railroad, and/or the existing by-pass road north and east of the community of Ocotillo. The Applicant has applied for a ROW to use the existing by-pass road, and is arranging a road-use agreement with the private mining companies who also have ROWs for the by-pass road. In the event such an agreement is unavailable, a combination of existing roads and newly-constructed roads within the proposed ROW would be utilized for construction and operational access needs.

SDG&E would utilize the main access road to the OWEF substation to access to the 500-kV switchyard. SDG&E would utilize the existing transmission line access road and new spur road for access to the new Sunrise Powerlink structures.

2.1.3.4 Decommissioning

The proposed OWEF would have a useful lifetime after which cost-effective operation would no longer be feasible. The power purchase agreement and ROW agreement have expirations of 20 and 30 years, respectively. It is expected that California's strong market for renewable energy will allow sufficient opportunities to market the output of the project beyond the initial term of the power purchase agreement. The utility switchyard would remain in place as an integral component of the CAISO grid beyond the life of the wind project. For purposes of the EIS/EIR analysis, the anticipated life of the proposed OWEF is 30 years, and it is likely that after that time the site would be decommissioned and existing facilities and equipment would be removed. It is also possible that the facility owners may wish to work with the BLM to replace the old facilities with a new re-powering project on the same site.

Prior to the termination of the ROW authorization, a decommissioning plan would be developed consistent with the BLM Wind Energy Program EIS/ROD, and approved by the BLM. The best management practices (BMPs) and stipulations developed for construction activities would be applied to similar activities during decommissioning. Reclamation includes bonding for the life of the project, removal and disposal of the turbine towers, above-ground electrical tower components, O&M facility, and substation components. All below ground infrastructure such as tower foundations and electrical collection lines would be removed to 3 feet below the ground surface and the remaining infrastructure that is deeper than 3 feet would be left in-place. Project roads would be removed and the impacted areas restored unless the BLM directs that roads be left in place. All roads and tower pads would be restored in accordance with the BLM-approved decommissioning plan. The decommissioning plan would include the following:

- Mobilize cranes to the site for each wind turbine;
- Drain all gearboxes, transformers, and hydraulic systems of fluids and put into appropriate containers before dismantling. Transport and dispose of all such fluids in accordance with all State and federal environmental regulations;
- Dismantle and remove the rotor, nacelle and towers and transport entire WTG off site. Note it is assumed this equipment will be scrapped and not re-used, thus bolts/nuts will be "torched off" as opposed to undone;
- Use an excavator to dig a 10-foot deep hole approximately two-thirds of the way around each foundation. With an air hammer or comparable equipment, break up the concrete foundation pedestals (down to 3 feet below grade) and transformer pads (if any) and place into the 10 foot deep hole in compliance with all applicable State and federal environmental regulations;
- Within the foundation excavation limits, the steel and cable shall be removed to the greater of 3 feet below the soil surface or the depth required by agreements with the BLM and project landowners. Where possible, the steel and cable items shall be separated and recycled;
- Backfill the holes with the soil that was excavated and regrade the foundation areas to as close as reasonably possible to the original ground contours. These areas shall be returned as close as reasonably possible to pre-construction conditions suitable for current adjacent land;
- Other than those roads that the BLM or private landowners wish to retain, access roads owned by the wind plant operator that lead to the wind turbines would be removed and restored in a manner consistent with current adjacent land use. Areas will be regraded as close as reasonably possible to the original ground contours. For the purposes of the decommissioning cost estimate, it is assumed that all the site access roads will be removed;
- Remove transformer and all other substation equipment from the site. Remove all concrete foundations, gravel and fencing, and regrade area as close as reasonably possible to the original ground contours and restored in a manner consistent with current adjacent land use;
- Underground cable circuits are anticipated to be buried at a depth of 4 feet below grade. All cable below 3 feet will be cut off and abandoned as is;
- The short transmission line between the project substation and the SDG&E Utility Switchyard will be decommissioned by first removing the electrical conductors, and then mobilizing a crane to each pole location and dismantling the pole, and loading the pole unto a scrap trailer for transportation to a local scrap yard. If concrete foundations are used, they will be removed to a depth of 3 feet below grade as described for the decommissioning of each turbine location;

- The operations and maintenance building, permanent meteorological towers, and radar systems would be removed and those sites remediated; and
- Where applicable and feasible, stockpiled topsoil will be respread across recontoured areas, and a native seed mix will be applied.

The following durations and staff requirements would be anticipated:

• Turbines	5/week/crew	12 people/crew
• Substation	8 weeks	20 people/crew
• Roads, crane pads, laydown areas	12 weeks	12 people/crew

2.1.3.5 Design Features and Best Management Practices

The proposed OWEF includes various features and practices intended to reduce environmental impacts.

Facility Commitments

- **Alternate Turbine Locations.** A maximum of 193 potential turbine locations were reviewed for compatibility with cultural and biological resources and 38 potential locations have been eliminated for avoidance of sensitive areas.
- **Use of Tubular Conical Steel Turbine Towers.** Tubular towers do not provide locations for raptors to perch, decreasing risk of collisions with turbine blades.
- **Underground Collection System.** Reduces the visual impact of overhead transmission as well as the potential impact to avian and bat species from collisions.
- **Setbacks.** Turbines on BLM lands would be set back from public roads at least 1.1 times the total turbine height and would be setback 1.5 times the total turbine height from any property lines and the ROW boundary.
- **Avian and Bat Protection Plan (ABPP)/Eagle Conservation Plan (ECP).** An ABPP and ECP that contain detailed mitigation requirements and adaptive management techniques to mitigate and minimize impacts to birds, bats, and specifically eagles. The plan details post-construction monitoring requirements and utilizes those findings to implement the necessary level of mitigation. A draft ABPP/ECP has been submitted to the BLM and wildlife agencies for review.
- A state-of-the-art radar system would be located onsite that would track large raptor movements in the project area combined with a video camera technology to track raptors in real time. If it is determined, by confirmation from an onsite biologist, that eagles are entering the project site, certain turbines may be curtailed (slowed or shut down) until the eagle has left the area.
- The project would have an observatory platform on site to be the control room for the biologists where they can have a commanding view of the entire site with 360-degree vision and be able to monitor the data feeds from the radar, video tracker and radio telemetry feeds in real time.
- No turbines would be located in Big Horn Sheep Critical Habitat.
- A spill prevention containment and countermeasure (SPCC) plan would be implemented which would provide secondary containment structures for all stationary oil/hazardous liquid-filled equipment including pad mounted transformers, substation transformers, and the oil storage shed. These containment devices along with strict monitoring and inspection policies are designed to protect critical natural resources. This plan provides rules and procedures for the storage, transport and disposal of hazardous construction materials, which include diesel fuel, lubricants, solvents, paint, and oil products during the construction phase. The SPCC plan also provides a clear action plan for responding to and giving notification to public agencies in the event of an accidental spill.
- A Comprehensive Fire Safety Plan has been prepared for construction and operation of the project. The objective of this plan is to eliminate the causes of fire, prevent loss of life and property by fire,

and to comply with the Occupational Safety and Health Administration's (OSHA) standard on fire prevention, 29 CFR 1926.24. Additionally, it provides employees and the public with information and guidelines that will assist them in recognizing, reporting, and controlling fire hazards.

- The project has committed to not using water from the Ocotillo-Coyote Wells sole source aquifer during the lifetime of the project.
- Containment vessels would be installed at each WTG site to provide extra protection to ensure that oil would not leak and impact the desert. A containment vessel is a concrete curb around a raised concrete pad which the pad-mounted transformers rest on. The area between the concrete pad and curb is filled with coarse aggregate, with sufficient void space to hold the volume of oil in the transformer. The bottom of the containment would consist of a filter type media to bind oil particles and yet let clean water to pass through.
- Installation of Siemens technology which prevents blade rotation on individual turbines as needed to avoid causing shadow flicker on residences.

Construction Commitments

- A **Transportation Plan** shall be developed, particularly for the transport of turbine components, main assembly cranes, and other large pieces of equipment that may be necessary to complete the project. The plan shall consider specific object sizes, weights, origin, destination, and unique handling requirements and shall evaluate alternative transportation approaches. Once a transportation approach is selected, the procedures outlined in the California Department of Transportation Permits Manual would be followed if applicable. In addition, the process that would be used to comply with any unique state requirements and to obtain the required permits or variances would be clearly identified and followed. This plan would be submitted to the BLM and Imperial County Department of Public Works for review and approval, and would be in place prior to the transportation of any turbine components.
- A **Traffic Management Plan** shall be prepared for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted. Under this plan, informational signs would be used to inform the public of temporary traffic hazards, flaggers would be employed when equipment would block throughways, and traffic cones would be used to identify any temporary changes in lane configuration necessary to minimize traffic impacts. This plan would be submitted to the BLM and Imperial County Department of Public Works for review and approval prior to construction.
- A **Dust Abatement Plan** for construction and operations would be developed prior to construction that includes control strategies for particulate matter less than 10 microns in diameter (PM10) and fugitive dust emissions that result from construction and operations activities. The control strategies are based on guidance and strategies presented in the Imperial County 2009 PM10 State Implementation Plan (SIP). Important components of the project dust abatement plan include use of magnesium chloride (MgCl) (flake or liquid solution) for dust control on roads during construction and use of signage to restrict off-highway vehicles from using newly constructed wind farm roads during and after construction in coordination with the BLM.
- MgCl as a dust palliative works by absorbing water from the air and binding road materials together to create a relatively hard road surface. As a dust control mechanism on construction roads, MgCl occurs naturally as evaporated brine (U.S. Department of Agriculture, Dust Palliative Selection and Application Guide), is well suited for the project site, and offers several significant advantages. MgCl is effective in hot and dry climates because it starts to absorb water from the air at low relative humidity (32%) and its ability to absorb water is independent of temperature. Relative humidity data from El Centro indicates that, on average, the relative humidity at night time regularly exceeds 32 percent even during the driest months of June. During the wettest month of January, the relative humidity, on average, exceeds 32 percent during all but 4 of the hottest hours of the day. Environmental impacts of MgCl are extremely low in desert type environments where fresh surface

water is scarce and the vegetation is specialized to the highly alkaline soils (pH > 8). The primary advantage of using MgCl as a dust suppression palliative for the OWEF is the estimated amount of water needed for dust suppression is reduced by approximately 75 percent. This water-use reduction directly relates to reducing the number of water truck trips for dust control. Under the correct application procedures, MgCl only needs to be applied once or twice per construction season.

- The project has committed to not using water from the Ocotillo-Coyote Wells sole source aquifer during the lifetime of the project. This effort would help ensure that this critical natural resource is preserved for future generations.
- A **Storm Water Pollution Prevention Plan** (SWPPP) has been developed and would be implemented upon approval by the BLM and the applicable Regional Water Quality Control Board during construction to reduce erosion and sediment run-off from construction activities. The SWPPP would requires strict monitoring of all erosion control measures and report the finding online via the state water quality control board website.
- A **Construction Waste Management Plan** would be developed to define the minimum practices which are to be employed on the project site to minimize diversion of construction waste and land clearing debris from landfill disposal and re-direct recyclable material. Material collection details would include brick; cardboard; concrete; metals; plastic, paper goods, and aluminum cans; and wood or lumber. The plan would include details on on-site collection, storage, and recycling activities; sequence and timing; and maintenance activities. This plan shall address all solid and liquid wastes that may be generated at the site.

Resource Conservation Measures

- Avoidance of any direct physical impacts to cultural resources. The Applicant has revised the site plan, including elimination of planned turbine locations and re-routing of planned access road locations, in order to completely avoid direct physical impacts to cultural resource locations identified during the extensive cultural surveys that have been completed for the Project. The Applicant also intends to develop a **Cultural Resource Monitoring and Mitigation Plan** prior to the start of construction that would include a procedure for identifying areas to be monitored during construction and that would ensure qualified archaeological monitors are used to carry out this task. A discovery plan, which may be part of the cultural resource monitoring and mitigation plan, may be part of the proposed mitigation. Construction workers would be educated about the importance of preserving significant cultural properties, and a process would be established for them to report and protect suspected discoveries. Curation would be arranged for any archaeological materials collected.
- Survey all proposed ground-disturbing activities in sensitive habitat areas utilizing the appropriate protocol.
- Wind farm above ground facilities shall be designed to discourage their use as perching or nesting substrates by birds. For example, the electrical collection system shall be underground rather than overhead, thereby limiting the number of power line poles to those few poles anticipated to support the six-hundred foot connection between the project substation and the switchyard. These few overhead power lines and poles shall be configured to minimize raptor electrocutions and discourage raptor and raven nesting and perching.
- **Migratory Birds.** If construction is planned during migratory periods, migratory bird clearance surveys would be conducted within the proposed disturbance areas. Evidence of active nests or nesting will be reported immediately to the BLM to determine appropriate minimization measures (i.e., avoidance buffer), on a case-by-case basis.
- **Restoration Plan.** A restoration plan would be prepared prior to restoration activities occurring onsite. The plan would describe restoration methods and requirements for temporary disturbance areas. Measures would include preserving native existing vegetation, replanting, reseeding and monitoring as required both during and post construction.

- The project would employ shadow flicker elimination technology in which light sensors are used to measure sunlight to determine where the direct sunlight is strong enough to cause shadow flicker impact effects on residences. In cases where the intensity of the light is strong enough to cause shadow flicker impact, the WTGs responsible for the shadow impact can be shut down for the duration of the impact.
- For soil disturbing actions which would require reclamation, soil and/or seed stocks may be salvaged and stockpiled prior to surface disturbances. Seed stock piles shall be windrowed and protected from wind erosion if they are to be left for more than one growing season. Re-contour all disturbance areas to blend as nearly as possible with the natural topography prior to re-vegetation. Rip all compacted portions of the disturbance to an appropriate depth based on site characteristics. Establish an adequate seed bed to provide good seed to soil contact. Note that stock piling top soil would increase disturbance areas at road and turbine assembly areas. Nearby experience with Mohave-Sonoran desert soils has shown that preservation of topsoil does not increase restoration rates.
- Develop a plan for control of noxious weeds and invasive species, which could occur as a result of new surface disturbance activities at the site, the presence of construction vehicles from off-site, the importation of gravel, soil or other substrate, or from other construction-related activities. The plan shall address monitoring, education of personnel on weed identification, the manner in which weeds spread, and methods for treating infestations. The use of certified weed-free mulching shall be required. All trucks and construction equipment shall be inspected and cleaned to remove and collect seeds that may be adhering to tires and other equipment surfaces.
- If pesticides are used on the site, an integrated pest management plan shall be developed to ensure that applications would be conducted within the framework of BLM and Department of Interior (DOI) policies and entail only the use of EPA-registered pesticides approved for use in BLM's Record of Decision: Vegetation Treatments Using Herbicides (Sept. 2007), as supported by the Final EIS for Vegetation Treatments Using Herbicides (June 2007). Pesticide use shall be limited to non-persistent, immobile pesticides and shall only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications. Herbicides may be used for vegetation removal around the base of WTGs during construction and to reduce the spread of noxious weeds.
- All straw, hay, straw/hay, or other organic products used for reclamation or stabilization activities must be certified that all materials are free of plant species listed on the California noxious weed list or specifically identified by the El Centro Field Office. Inspections will be conducted by a weed scientist or qualified biologist.
- Where appropriate, vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities; or for authorized off-road driving would be free of soil and debris capable of transporting weed propagules. Vehicles and equipment would be cleaned with power or high pressure equipment prior to entering or leaving the project area. Cleaning efforts would concentrate on tracks, feet or tires, and on the undercarriage. Special emphasis would be applied to axles, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out and refuse would be disposed of in waste receptacles. Cleaning sites would be recorded using global positioning systems or other mutually acceptable equipment and provided to the El Centro District Office Weed Coordinator or designated contact person.
- Prior to the entry of vehicles and equipment to a planned disturbance area, a weed scientist or qualified biologist would identify and flag areas of concern. The flagging will alert personnel or participants to avoid areas of concern.
- To minimize the transport of soil-borne noxious weed seeds, roots, or rhizomes, infested soils or materials would not be moved and redistributed on weed-free or relatively weed-free areas. In areas where infestations are identified or noted and infested soils, rock, or overburden must be moved, these materials would be salvaged and stockpiled adjacent to the area from which they were stripped.

Appropriate measures would be taken to minimize wind and water erosion of these stockpiles. During reclamation, the materials would be returned to the area from which they were stripped.

2.1.3.6 SDG&E Best Management Practices

SDG&E may construct the utility switchyard and SPL Loop-in upon the completion of grading by the Applicant. The BLM would issue a separate ROW grant for the switchyard and associated facilities, which would be transferred from the Applicant to SDG&E after initial grading is complete to allow SDG&E to build its own switchyard facilities. The following Operational Protocols are required by the SDG&E Subregional Natural Community Conservation Plan (NCCP) and would apply to construction, operation and maintenance of the switchyard and SPL loop-in. These measures are environmentally sensitive construction, operation and maintenance techniques that reduce impacts to biological resources and prevent environmental degradation during construction. These measures include, but are not limited to, the following types of measures. Refer to Section 7.1 Operational Protocols, SDG&E Subregional NCCP (SDG&E, 1995) for a full list of operation protocols.

- An environmental training of the sensitive resources onsite shall be given to all construction personnel
- No harming of wildlife including rattlesnakes
- No pets allowed
- No collection of plants and wildlife
- Construction activities, including staging areas would be limited to within flagged boundaries
- Minimize erosion with Best Management Practices
- Avoid impacts to wetlands
- Control fugitive dust
- Additionally construction of SDG&E's interconnection facilities includes the following features and practices:

Air Quality

- All materials excavated or graded would be sufficiently watered to prevent excessive dust. Watering would occur as needed with complete coverage of disturbed areas. The excavated soil piles would be watered hourly for the duration of construction or covered with temporary coverings;
- Construction activities that would occur on unpaved surfaces would be discontinued during windy conditions when winds exceed 25 miles per hour and when those activities cause visible dust plumes. All grading activities shall be suspended when wind speeds are greater than 30 miles per hour;
- Traffic speeds on unpaved roads shall be limited to 15 miles per hour;
- Disturbed areas shall be minimized;
- SDG&E shall control emissions from the on-site off-road construction equipment by implementing the following:
- All off-road construction diesel engines not registered under California Air Resources Board's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower, shall meet, at a minimum, the Tier 3 California Emissions Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless such engine is not available for any off-road engine larger than 100 horsepower and smaller than 750 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxides and particulate matter emissions that are equivalent to Tier 3 engine. Off-road equipment with diesel engines larger than 750 horsepower shall meet Tier 2 California Emissions Standards.

Cultural Resources

- The size of cleared and disturbed lands shall be minimized as much as possible. Existing roads shall be used as much as possible;
- All construction personnel shall be trained regarding the recognition of possible cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbance activities. All SDG&E construction personnel shall complete training provided by the OWEF prior to initiation of construction or ground-disturbing activities. Documentation showing when training of personnel was completed shall be retained and furnished to SDG&E by OWEF. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archeological materials, including Native American burials. Training shall inform all construction personnel that Environmental Sensitive Areas (ESAs) must be avoided and that travel and construction activities must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the ROW by SDG&E, it's contractor, or employees will not be allowed;
- All construction personnel shall be required to attend training so they are aware of the potential for inadvertently exposing buried archeological deposits, their responsibility to avoid and protect cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources;
- All supervisory construction personnel shall attend training describing the potential for exposing cultural resources, the location of any potential ESAs, and procedures and notifications required in the event of discoveries by project personnel or archeological monitors. Supervisors shall also be briefed on the consequences of intentional and inadvertent damage to cultural resources. Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources.

Noise

- Noisy construction activities shall be limited to the least noise-sensitive times of day (daytime only between 7 a.m. and 10 p.m.) [Mitigation to comply with local noise ordinances would take precedence over this noise limit; Please see Section 4.9 (Noise)] and weekdays;
- When feasible, different noisy activities (e.g., earthmoving, foundation construction), shall be scheduled to occur at the same time since additional sources of noise generally do not add a significant amount of noise;
- Construction equipment shall be adequately muffled and maintained;
- All stationary construction equipment (i.e., compressors and generators) shall be located as far as practicable from nearby residences.

Paleontological

- Prior to construction, all SDG&E construction personnel and construction contract personnel shall attend a training session on the recognition of the types of paleontological resources that could be encountered within the project area and the procedures to be followed if they are found;
- Permanent fencing shall be installed and maintained around the Utility Switchyard.

2.2 Proposed Land Use Amendment Decisions

The proposed OWEF would be located in an area falling under the BLM's CDCA Plan. The CDCA Plan identifies wind energy development as an authorized use of public lands, consistent with the CDCA Plan and NEPA. Consequently, public lands located in the CDCA are not restricted from wind energy development. The portion of the proposed OWEF site located on BLM-administered lands is located within the "Limited" category of the BLM's CDCA Plan, and the remainder of the project site is located on private land under Imperial County's jurisdiction.

If the Proposed Action, Alternative 2 or Alternative 3 is selected as the preferred alternative, the BLM would authorize a ROW application and amend the CDCA Plan to designate public lands within the area as suitable for wind energy development, and the County would grant a conditional use permit for project development on private lands.

Potential LUP amendment decisions:

- **PA1** – The CDCA Plan would be amended to approve the Proposed Action site, the Alternative 2 site or the Alternative 3 site for development of the Proposed (as described under each alternative below) and all other types of wind energy development. (This is the proposed land use plan amendment.)
- **PA2** – The CDCA Plan would not be amended. (This is the No Action Alternative, identified as Alternative 4.)
- **PA3** – The CDCA Plan would be amended to identify the OWEF application area as unsuitable for any type of wind energy development. (This is a No Project Alternative identified as Alternative 5.)
- **PA4** – The CDCA Plan would be amended to identify the OWEF application area as suitable for any type of wind energy development. (This is a No Project Alternative identified as Alternative 6.)

2.3 Action Alternatives, including the Proposed Action

2.3.1 Alternative 1: Proposed Action

The siting of wind turbines at the Proposed Action site was based on a number of environmental factors including setbacks for particular environmental resources and the avoidance of locations with cultural resources, and avoidance of areas crossed by microwave transmission paths. Figure 2.1-4 displays the environmental constraints utilized in determining turbine locations at the Proposed Action site.

The Applicant proposes to construct, operate, maintain, and decommission the proposed OWEF, an up to 465-MW wind energy facility on approximately 12,500 acres in Imperial County, California (Figure 1-1). The project would be located on BLM-administered land except for approximately 500 acres of private and public land outside the project boundaries would be utilized for road access and collection line ROWs, primarily needed to connect those few turbines located south of I-8 to the balance of the Project area north of I-8 The Applicant would coordinate with the BLM, private property owners, and Caltrans for access to these private lands.

The proposed OWEF consists of the construction, operation, maintenance, and decommissioning of WTGs and associated facilities necessary to successfully generate up to 465 MW of electrical energy in Imperial County, within the vicinity of the unincorporated community of Ocotillo. A proposed total of 155 WTGs would be located on the project site, designed to produce up to 465 MW of energy. The proposed OWEF would be constructed in a single construction phase. A power purchase agreement for 315 MW of capacity is in place; the remaining 41.5 MW of capacity is not currently contracted. The proposed OWEF would install up to 155 WTGs using turbines ranging from 1.6 to 3 MW in generating capacity to attain 465 MW.

As shown on Figure 2.3-1, the proposed OWEF site consists of two site areas: the main northwestern site (Site 1) covering about 11,300 acres; the smaller southeastern site (Site 2) covering about 1,200 acres.

The SPL crosses the proposed OWEF site (Figure 2.1-2), facilitating interconnection of the proposed OWEF and transmission of its renewable energy output to key load centers in southern California.

A portion of Highway S2 runs through the proposed OWEF site in a northwest to east direction, as well as the Interstate 8 (I-8), which crosses a portion of the southern area of the proposed OWEF site (Figure 2.3-1). The Evan Hewes Highway is located east of the proposed OWEF site, traversing from northeast to southwest and merges with the Highway S2. Additionally, Highway 98 crosses the northeast portion of Site 2 of the proposed OWEF site, and eventually connects to I-8.

The OWEF site currently has existing access via I-8 to the south and/or the Highway S2, which crosses near the center of the site. Refer to Figure 2.1-5 for a complete list of access locations during construction and operation of the proposed OWEF.

Approximately 395 construction workers would be employed, and the majority of these workers would be onsite daily during construction. The number of peak construction workers would be 356.

Table 2-3 provides the total acres of permanent and temporary disturbance associated with the Proposed Action.

Table 2-3. Acres of Disturbance for Proposed Action (Alternative 1)

Facility Component	Temporary Disturbance (Acres)	Permanent Disturbance (Acres)
Turbine Foundations	218.4	15.6
Batching Plant & Laydown/Parking/Staging Area	29.4	0
Access Roads*/Collector Lines/Crane Walk	248.6	104.8
Meteorological Towers	2.0	0.1
Substation/Switchyard	0.7	31.7
O&M Facility	0	3.3
Total	**499.1**	**155.5**

Note: Impact acreages listed for temporary and permanent disturbance are independent of each other and are not additive. Permanent disturbance acreage is not included in the temporary disturbance numbers.
Disturbance numbers stated in other sections of the document may be additive. However, disturbance numbers will not be greater than those listed in Table 2-3.
*Assumes 20-foot wide access roads would be constructed within a 36-foot wide temporary road disturbance area. The access road disturbance in this table assumes 42 linear miles of access roads for the Proposed Action.

2.3.2 Alternative 2: 137 Wind Turbine Generators

This alternative is conceptually similar to the Proposed Action (Alternative 1), but with 18 fewer WTGs (137 total), five of which are optional sites. The site plan for Alternative 2 is provided in Figure 2.3-2. These turbines would be 2.3-MW WTGs, which would meet the Power Purchase Agreement amount of 315 MW. Compared to the Proposed Action, the turbines eliminated under this alternative include some in the southern portion of Site 2 (3) and northeast portion of Site 1 (1 WTG, 4 optional), and several along the perimeter of the project in the northwest portion of Site 1 (9 WTGs, 1 optional). The locations of the substation, switchyard, O&M facility, batch plant, rail yard, and meteorological towers are the same as the Proposed Action. Wind turbines have been eliminated to avoid sensitive cultural and biological resources, particularly in the southwestern portion of the site.

Construction of Alternative 2 would utilize the same equipment and materials as the Proposed Action (Alternative 1); however, less material would be required due to the reduction in the number of WTGs. Construction of this alternative would be completed in a single phase lasting 11 months. Land disturbance would be reduced as 18 fewer turbine foundations/crane pads would be required and fewer access roads and collector lines would be needed. Table 2-4 provides the total acres of permanent and temporary disturbance associated with Alternative 2.

Table 2-4. Acres of Disturbance for Alternative 2

Facility Component	Temporary Disturbance (Acres)	Permanent Disturbance (Acres)
Turbine Foundations [1]	194.1	13.8
Batching Plant & Laydown/Parking/Staging Area	29.4	0
Access Roads/Collector Lines [2]/Crane Walk	240.6	99.6
Meteorological Towers	2.0	0.1
Substation/Switchyard	0.7	31.7
O&M Facility	0	3.3
Total	**466.8**	**148.5**

Notes:

(1) Based on proposed OWEF GIS data, removing roads and collector lines to the eliminated WTG sites.

(2) Impact acreages listed for temporary and permanent disturbance are independent of each other and are not additive. Permanent disturbance acreage is not included in the temporary disturbance numbers.
Disturbance numbers stated in other sections of the document may be additive. However, disturbance numbers will not be greater than those listed in Table 2-3.

2.3.3 Alternative 3: 105 Wind Turbine Generators

This alternative is conceptually similar to the Proposed Action (Alternative 1), but with 50 fewer WTGs (105 total), as shown in Figure 2.3-3. These turbines would have to be 3.0-MW WTGs to meet the Power Purchase Agreement amount of 315 MW. Compared to the Proposed Action, the turbines eliminated under this alternative include all those at Site 2 (15 WTGs), several turbines in the northeast portion of Site 1 (22 WTGs), a couple near and the one on the private parcel (3 WTGs), and several along the perimeter of the project in the northwest portion of Site 1 (10 WTGs). In addition, the meteorological tower on Site 2 would be eliminated. The locations of the substation, switchyard, O&M facility, batch plant, rail yard, and remaining meteorological towers are the same as the Proposed Action.

Construction of Alternative 3 would utilize the same equipment and materials as the Proposed Action (Alternative 1); however, less material would be required due to the reduction in the number of WTGs. Construction of this alternative would be completed in a single phase lasting 11 months. Land disturbance would be reduced as 50 fewer turbine foundations/crane pads would be required and fewer access roads and collector lines would be needed. Table 2-5 provides the total acres of permanent and temporary disturbance associated with Alternative 3.

Table 2-5. Acres of Disturbance for Alternative 3

Facility Component	Temporary Disturbance (Acres)	Permanent Disturbance (Acres)
Turbine Foundations [1]	148.8	10.6
Batching Plant & Laydown/Parking/Staging Area	27.4	0
Access Roads/Collector Lines [2]/Crane Walk	191.5	79.0

Table 2-5. Acres of Disturbance for Alternative 3

Facility Component	Temporary Disturbance (Acres)	Permanent Disturbance (Acres)
Meteorological Towers	1.3	0
Substation/Switchyard	0.7	31.7
O&M Facility	0	3.3
Total	**369.7**	**124.6**

Notes:

(1) Based on proposed OWEF GIS data, removing roads and collector lines to the eliminated WTG sites.

(2) Impact acreages listed for temporary and permanent disturbance are independent of each other and are not additive. Permanent disturbance acreage is not included in the temporary disturbance numbers. Disturbance numbers stated in other sections of the document may be additive. However, disturbance numbers will not be greater than those listed in Table 2-3.

2.4 No Action/No Project Alternative

2.4.1 Alternative 4: No issuance of a ROW grant or County approval; No LUP Amendment

Under this alternative, the BLM would not approve the proposed OWEF and would not amend the CDCA Plan. As a result, no wind energy project would be constructed, and the BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. Because there would be no amendment to the CDCA Plan and no wind project approved for the site under this alternative, no new structures or facilities would be constructed or operated on the site and no new ground disturbance would occur. As a result, there would be no direct, indirect, or cumulative impacts associated with the OWEF or its alternatives to the resources within the proposed project site identified in Chapters 3 and 4. The land on which the project is proposed to be located would become available to other uses that are consistent with the BLM's land use plan.

While this alternative would avoid the impacts identified in Chapters 3 and 4 associated with Alternatives 1, 2, and 3, as discussed above, the overall project purpose is "To provide a wind energy facility ranging in size from approximately 315 MW to 465 MW in Imperial County, California to assist California and its IOUs in meeting the State's Renewables Portfolio Standard (RPS) and GHG emissions reduction requirements, including the requirements set forth in Senate Bill (SB) 1078 (California RPS Program), Assembly Bill (AB) 32 (California Global Warming Solutions Act of 2006), and SB X1-2 to increase the State's Renewable Energy Standard to 33 percent renewable power by 2020. Under this Alternative 4, the wind energy and GHG emission reductions projected for this proposal and alternatives would not be met. The State's renewable energy goals would have to be met using other alternative energy projects at other locations.

Additionally, as discussed for BLM's Purpose and Need, the mandates under Executive Order 13212, dated May 18, 2001, Secretarial Order 3285A1, dated March 11, 2009, and amended on February 22, 2010, and The Energy Policy Act 2005 (EPAct) would not be met and would also be deferred to other areas and at a later date.

2.5 No Project Alternatives

2.5.1 Alternative 5: No issuance of a ROW grant or County approval; approval of a land use plan amendment to exclude wind energy development on the site of the Proposed Action

Under this alternative, the BLM would not approve the proposed OWEF, but would amend the CDCA Plan to exclude the proposed site from future wind energy development. As a result, no wind energy project would be constructed on the site, and the BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended. Because the CDCA Plan would be amended to exclude future wind energy development, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site. Under this alternative, as with Alternative 4 above, there would be no impacts associated with the OWEF or its alternative. By not issuing an ROW grant for the OWEF and amending the CDCA Plan to exclude wind energy in the area, this alternative would result in a loss of the renewable energy generation potential estimated for the proposed project and alternatives and the potential reduction of GHG emissions that would result from the generation of wind energy at the project site.

2.5.2 Alternative 6: No issuance of ROW grant or County approval; approval of a land use plan amendment to make site available for future wind energy development

Under this alternative, the BLM would not approve the proposed OWEF, but would amend the CDCA Plan to allow for other wind projects on the site. As a result, it is possible that another wind energy project could be constructed on the site. Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different wind technology. Different wind technologies require different amounts of grading; however, it is expected that all wind technologies would require some grading and maintenance activities. As a result, while Alternative 6 would not result in any of the impacts associated with the OWEF or alternatives, by allowing for future wind development in the project area, similar potential impacts as described for the Proposed Action and alternatives could potentially occur with such a future development at some later point in time.

2.6 Comparison of Impacts by Alternative

CEQ's NEPA regulations provide that the alternatives section of an EIS should "present the environmental impacts of the proposal and the alternatives in comparative form" so as to identify a "basis for choice among options by the decision maker and the public." (40 CFR §1502.14). The State CEQA Guidelines (§ 15126.6(d)) state that an EIR "shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison." The discussion in this section addresses the environmental impacts of the alternatives (including the Proposed Action) considered in detail in this EIS/EIR and identifies environmental bases for choosing among them.

This section draws on the detailed discussions of the existing environmental conditions in Chapter 3 of this EIS/EIR; the analysis of the environmental consequences of the alternatives in Chapter 4 of this EIS/EIS; and the technical studies and other material in the Appendices.

- **Air Resources.** This is an area where some differences among the alternatives may exist, particularly during the construction period. Alternatives 1-3 would have significant, unavoidable emissions of NOx and PM10 during the construction period, with Alternative 1 having slightly higher emissions than Alternative 2 and Alternatives 1 and 2 each having higher emissions than Alternative 3. However, when those emissions are averaged over the 30-year life of a wind energy project, the differences among Alternatives 1-3 fade to insignificance. Alternatives 1-3 would not have any significant operational impacts on air resources.

  Although speculative, in the near term, Alternatives 4-6 would not be expected to result in any development at the project site, and would therefore have fewer impacts on air resources than Alternatives 1-3. In the long term, some development of the project site could be possible under Alternatives 4 and 6. The specific relationship between the long-term consequences of Alternatives 4 and 6 on air resources and the consequences of the other alternatives depends on whether and how the site is eventually developed. However, it is worth noting that wind energy projects like those proposed under Alternatives 1-3 are generally considered to have fewer impacts on air resources than many other types of land use development (particularly during the operation phase of the project).

- **Climate Change.** As explained in Chapter 3, there is general scientific consensus that man-made emissions of GHGs are likely to contribute to climate change, if not sufficiently curtailed.

  Alternative 1 would result in slightly higher GHG emissions during construction than the other alternatives, but once built would potentially displace more GHG emissions from fossil fuel-fired energy facilities than any other alternative because of its size. Alternative 2 would have fewer GHG emissions during construction than Alternative 1, but once built would also displace fewer GHG emissions from fossil fuel-fired energy facilities than Alternative 1. Alternative 3 would have fewer emissions during construction than Alternatives 1 and 2, but once built would displace fewer GHG emissions than Alternatives 1 and 2. Overall, Alternatives 1-3 would have net negative GHG emissions, with Alternative 1 having the greatest GHG emission-reducing impact.

  In the near term, Alternatives 4-6 would not result in a measurable reduction in GHG emissions. In the long-term, Alternative 4 could allow the project site to be used for other uses. Alternative 5 would not allow any wind energy development at the project site, and Alternative 6 could allow wind energy development to be approved at the site at some future time. However, since the potential development of the Project site under these alternatives is speculative, the specific relationship between the long-term GHG emissions and Alternatives 4 – 6 cannot be determined.

- **Cultural Resources.** This is not an area where meaningful differences among the alternatives exist. All of the alternatives will have a significant adverse impact to the setting of the resources that are contributors to the proposed Traditional Cultural Property/historic district. Project redesign and the implementation of the proposed mitigation measures may reduce some of these impacts, but in general they are thought to be unavoidable. The Applicant has modified and reduced the footprint of Alternative 1 so as to avoid all physical impacts to known cultural resources. The development contemplated under Alternatives 1-3 could lead to the discovery of unknown historic or cultural resources (with Alternative 1 presenting the greatest possibility of inadvertent discovery, followed by Alternative 2 and Alternative 3), but mandatory mitigation measures should result in physical impacts to any such resources being avoided. Alternatives 4-6 would not result in any near-term development, and would therefore be expected to have no near-term impact on historic or cultural resources. It is important to note, however, that some degradation of cultural resources at and near the project site has likely occurred over time due to mineral extraction, public use, and other activities. Mitigation measures required for the alternatives, including funding of monitoring and enforcement personnel to protect cultural sites from inadvertent damage could help avoid such degradation. Those mitigation measures would apply to Alternatives 1-3, but not to Alternatives 4-6.

Under Alternatives 4 and 6, some development of the site could eventually take place, but such development would almost certainly be subject to mitigation measures similar to those applicable to Alternatives 1-3, and would therefore have impacts comparable to those alternatives. Alternative 5 would not result in any wind energy development of the project site, and therefore presents the least potential for inadvertent discovery of unknown historic or cultural resources.

- **Environmental Justice.** This is not an area where differences among the alternatives exist. None of the alternatives would result in any environmental justice impacts because none would have a disproportionately high, significant impact on a minority population. The only majority-minority Census Block located in the vicinity of the project site would not be affected, let alone significantly affected, by any of the alternatives.
- **Lands and Realty.** This is an area in which there might be some differences among the alternatives, particularly in the near term. Alternatives 1-3 include amendments to the CDCA Plan. However, during the construction period, the project site would be inaccessible for recreation, thereby impacting recreational resources. Alternatives 4-6 would not result in any near-term impacts to the project site, and would therefore have no impact on lands and realty. Under Alternatives 4 and 6, some development of the site could take place. However, the specific relationship between the long-term impacts of those alternatives on lands and realty and the other alternatives considered in this EIS/EIR depends on what sort of development, if any, is eventually proposed and approved. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact on the environment with respect to such development.
- **Mineral Resources.** This is not an area where meaningful differences among the alternatives exist. Alternatives 1-3 would require sand and gravel for roads and concrete (with Alternative 1 requiring more than Alternatives 2 and 3, and Alternative 2 requiring more than Alternative 3) that could result in occasional, temporary access restrictions while loads are being hauled. Impacts associated with these restrictions would not be significant. Alternatives 4-6 would not result in any near-term impacts to the project site, and would therefore have no impact on mineral resources. Under Alternatives 4 and 6, some development of the site could take place. However, the specific relationship between the long-term impacts of those alternatives on mineral resources and the impacts of other alternatives considered in this EIS/EIR depends on what sort of development, if any, is eventually proposed. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact on the environment with respect to such development.
- **Multiple Use Classes.** This is not an area in which there are meaningful differences among the alternatives. As explained in detail in Section 4.8, Alternatives 1-3 would be consistent with applicable multiple use guidelines. Alternatives 4-6 would not result in any near-term impacts to the project site. While some development could eventually take place under Alternatives 4 and 6, such development (like Alternatives 1-3) would be required to be consistent with applicable multiple use guidelines.
- **Noise.** This is an area where some differences among the alternatives may exist. Additional detail about noise impacts can be found in Section 3.10, Section 4.9, Figures 3.10-3, 4.9-1 through 4.9-5, and 4.16-1 (Appendix A), and the noise modeling results and calculations (Appendix F). The project has been designed to minimize the number of existing residences in Ocotillo that would be exposed to noise levels above 40 dBA Leq. Turbine setbacks of at least 800 meters from any residence in Ocotillo have been utilized in the project layout design. This setback is greater than the 550-meter setback requirements in Ontario, Canada, which are among the most stringent existing requirements (CanWEA, 2011).

  During construction, Alternative 1 would result in short-term increases in noise associated with on-site construction; however, those increases would not exceed local (Imperial County) noise limits and would be reduced with the application of BLM's BMPs and mandatory mitigation measures (Mitigation Measures Noise-1 through Noise-4). Alternative 1 would also result in additional traffic on local roadways during construction, resulting in a temporary increase in traffic noise. Such traffic noise would not represent a substantial increase over existing conditions. It is also worth noting that, in some areas along roadways near the project site, existing noise levels already exceed local land use noise compatibility guidelines.

During operations, Alternative 1 would result in noise associated with the operation of wind turbines. During the day, turbine noise would not be noticeable; at night, turbine noise associated with Alternative 1 would represent a substantial increase over existing noise conditions and may result in complaints from local residences. However, even under worst-case meteorological conditions, turbine noise would be well below the federal (OSHA and EPA) limits on noise and would meet local (Imperial County) limits on noise. Regular O&M activities, such as periodic visits to the wind turbines and substation, would result in short-term elevated noise levels, but would be a moving source such that the contribution towards the one-hour measured noise level at any single receptor location would be minimal. Infrequent but noisy maintenance activities, such as road and turbine maintenance, would occur intermittently, would be of short duration, and would move throughout the site as maintenance needs are identified, such that it is unlikely elevated noise levels would impact any one residence for more than a few hours per year. These activities would meet local (Imperial County) limits on noise with application of mandatory mitigation (Mitigation Measure Noise-5).

The construction noise impacts associated with Alternative 2 would be similar to those associated with Alternative 1, but of shorter duration. Operational noise impacts from the wind turbines associated with Alternative 2 would be very similar to those associated with Alternative 1 – operational noise levels for the two alternatives would differ by approximately one decibel. O&M impacts would also be identical to Alternative 1.

Construction noise impacts associated with Alternative 3 would be less noticeable, as construction activities would be occurring farther away from residences and of shorter duration than those associated with Alternatives 1 and 2. Unmitigated construction activities under Alternative 3 would not result in a substantial increase over the existing ambient noise levels, unlike Alternative 1. Same as Alternative 1, these noise levels would not exceed local (Imperial County) noise limits and would be reduced with application of BLM BMP's and mandatory mitigation measures (Mitigation Measures Noise-2 through Noise-4). Operation noise levels from the wind turbines associated with Alternative 3 would be noticeably lower (reduced by more than 3 dBA Leq) than those associated with Alternatives 1 and 2 at several of the closest receptors and result in noise levels of less than 40 dBA Leq at all existing residences in Ocotillo. Similar to Alternatives 1 and 2, noise levels generated by the wind turbines during daytime would not be noticeable. However, nighttime wind turbine noise would only result in a substantial increase over existing noise conditions at a few residences within Ocotillo and no impacts would occur within Nomirage.

Alternatives 4-6 would not result in any near-term impacts to the project site, and therefore would have no immediate impact on noise levels. Under Alternatives 4 and 6, some development of the site could eventually take place. However, the specific relationship between the long-term impacts of those alternatives on noise levels and the impacts of other alternatives considered in this EIS/EIR depends on what sort of development, if any, is eventually proposed and approved. If a different wind energy project is eventually proposed and approved for the project site, it would likely have noise impacts similar to those of Alternatives 1-3. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact on noise with respect to such development.

- **Paleontological Resources.** This is not an area where meaningful differences among the alternatives exist. None of the alternatives would result in the destruction of known paleontological resources. Alternatives 1-3 create the potential for inadvertent impacts to undiscovered resources, with Alternative 1 creating the greatest such potential given its larger area of disturbance. However, Alternatives 1-3 will not result in the disturbance of land deemed to have high potential for paleontological resources or disturb a significant amount of land deemed to have "moderate" resource potential.

Alternatives 4-6 would not result in any near-term impacts to the project site, and therefore would have no immediate impact on paleontological resources. Under Alternatives 4 and 6, some development of the site could eventually take place. However, the specific relationship between the long-term impacts of those alternatives on paleontological resources and the impacts of other alternatives considered in this EIS/EIR depends on what sort of development, if any, is eventually proposed and approved. If a different wind energy project is eventually proposed and approved for the project site, it would likely have impacts on paleontological resources similar to those of Alternatives 1-3. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact on the environment with respect to such development. However, as noted above, some degradation has been occurring (unrelated to the Proposed Action) due to off-road vehicle use and other impacts, and to the extent mitigation measures associated with Alternatives 1-3 are implemented such as funding monitoring and enforcement for protection of these resources, those alternatives may be superior in this regard by reducing impacts to paleontological resources in the project area.

- **Public Health and Safety.** This is an area where small differences among the alternatives may exist. Alternatives 1-3 would involve the construction of large wind turbines, which could potentially present safety hazards for aircraft, result in the use or release of hazardous materials, temporarily interfere with emergency services, and the turbines themselves could be damaged by seismic hazards. However, mandatory mitigation measures would reduce each of these potential impacts. Alternatives 4-6 would not result in any near-term impacts to the project site, and therefore would have no immediate effect on public health and safety. Under Alternatives 4 and 6, some development of the site could eventually take place. However, the specific relationship between the long-term impacts of those alternatives on public health and safety and the impacts of other alternatives considered in this EIS/EIR on public health and safety depends on what sort of development, if any, is eventually proposed and approved. If a different wind energy project is eventually proposed and approved for the project site, it would likely have impacts similar to those of Alternatives 1-3. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact on public health and safety resources with respect to such development.
- **Recreation.** This is not an area where meaningful differences among the alternatives exist. As noted above, Alternatives 1-3 could result in temporary loss of recreational opportunities at the project site during construction. However, this impact would not be significant for Alternatives 1-3. Alternatives 4-6 would not result in any near-term impacts to the project site, and therefore would have no immediate impact on recreation. Under Alternatives 4 and 6, some development of the site could eventually take place. However, the specific relationship between the long-term impacts of those alternatives on recreation and the impacts of other alternatives considered in this EIS/EIR depends on what sort of development, if any, is eventually proposed and approved. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact on the recreational resources with respect to such development.
- **Social and Economic Issues.** This is an area where some differences among the alternatives may exist. Alternatives 1-3 would have a positive impact on the local economy (with Alternative 1 having the greatest such impact, followed by Alternative 2 and then Alternative 3). Alternatives 4-6 would not result in any near-term economic impacts. Under Alternatives 4 and 6, some development of the site could eventually take place. However, the specific relationship between the long-term economic impacts of those alternatives and the impacts of other alternatives considered in this EIS/EIR depends on what sort of development, if any, is eventually proposed and approved. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no socioeconomic impact with respect to such development.
- **Soil.** This is not an area where meaningful differences among the alternatives exist. Alternatives 1-3 would involve construction at the project site, which creates the potential for erosion and loss of topsoil (the greatest soil erosion potential is under Alternative 1, with less erosion under Alternative 2, and even less erosion under Alternative 3). However, potential soil erosion under Alternatives 1-3

will be reduced to insignificance with the application of mandatory mitigation measures. Under Alternatives 4 - 6, some development of the site could eventually take place, and it is conceivable that such development could create a risk of erosion. However, the specific erosion risk would depend on what sort of development, if any, is eventually proposed and approved, and, in any event, it is reasonable to expect that any future development on the project site would be subject to erosion-reducing mitigation measures, thereby rendering impacts similar to those of Alternatives 1-3. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact with respect to such development.

- **Special Designations.** This is an area where there might be some differences among the alternatives. Alternatives 1-3 would result in some disturbances in the environment related to noise and air pollution. However, those disturbances would be relatively slight and, for the most part, temporary or occasional. Alternatives 1-3 would also have an impact on the visual environment, which would be more permanent. Alternatives 4-6 would not result in any near-term economic impacts. Under Alternatives 4 and 6, some development of the site could eventually take place, and it is conceivable that such development could impact relevant special designations. However, the specific impacts would depend on what sort of development, if any, is eventually proposed and approved. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact with respect to such development.
- **Transportation and Public Access.** This is not an area where meaningful differences among the alternatives exist. Alternatives 1-3 would increase the amount of traffic on local roadways, particularly during construction. None of the traffic associated with the project would substantially affect traffic conditions or otherwise have a significant impact on transportation. Alternatives 4-6 would not result in any near-term impacts. Under Alternatives 4 and 6, some development of the site could eventually take place. The impacts of such development would depend on what sort of project, if any, is eventually proposed and approved. If a wind energy project is eventually proposed and approved under Alternative 6, traffic impacts would likely be similar to those of Alternatives 1-3. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact with respect to such development.
- **Aquatic Resources.** This is an area where differences among the alternatives exist. Alternatives 1-3 would result in direct and indirect impacts to aquatic resources within State and Federal jurisdiction, with Alternatives 1 and 2 having similar impacts and Alternative 3 having a smaller impact. Alternatives 4-6 would not result in any near-term impacts. Under Alternatives 4 and 6, some development of the site could eventually take place. The impacts of such development would depend on what sort of development, if any, is eventually proposed and approved. If a wind energy project is eventually proposed and approved. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact with respect to such development.
- **Visual Resources.** This is an area where differences among the alternatives exist. Alternatives 1-3 would result in the conversion of the existing desert landscape to a landscape in which energy generation is prominent during the life of the project, as well as the possibility of additional changes to the landscape during the period after the removal of the turbines and before vegetation recovers. Alternatives 1 and 2 would have fairly similar impacts and the impact of Alternative 3 would be less, particularly for residents of Ocotillo and Nomirage and travelers on highways SR-98 and I-8. Alternatives 4-6 would not result in any near-term impacts. Under Alternatives 4 and 6, some development of the site could eventually take place. The impacts of such development would depend on what sort of development, if any, is eventually proposed and approved. If a wind energy project is eventually proposed and approved under Alternative 6, visual impacts would likely be similar to those of Alternatives 1-3. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact with respect to such development.
- **Water Resources.** This is an area where differences among the alternatives exist. Alternatives 1-3 would use groundwater imported from outside the Ocotillo area for construction purposes, with. Alternative 1 using the most water, and Alternatives 2 and 3 using less, respectively. However, with

the implementation of mitigation measures, there would be no significant impacts as a result of Alternatives 1-3. Alternatives 4-6 would not result in any near-term impacts. Under Alternatives 4 and 6, some development of the site could eventually take place. The impacts of such development would depend on what sort of development, if any, is eventually proposed and approved. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact with respect to such development.

- **Wildland Fire Ecology.** This is an area where some differences among the alternatives may exist. Alternatives 1-3 would create some risk of wildland fire, with Alternative 1 presenting a slightly greater risk simply because it involves more extensive operations. The wildfire risks associated with Alternatives 1-3 would have no significant impacts with the application of mandatory mitigation measures. Alternatives 4-6 would not result in any near-term impacts. Under Alternatives 4 and 6, some development of the site could eventually take place. The impacts of such development would depend on what sort of development, if any, is eventually proposed and approved. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact with respect to such development.
- **Wildlife Resources.** This is an area where differences among the alternatives exist. Alternatives 1-3 would impact special status species and/or their habitat. Some of these impacts are considered significant and would be mitigated in collaboration with the U.S. Fish and Wildlife Service and, as needed, other agencies. Alternative 1 would have the greatest impact on wildlife because it covers the largest area, with direct impacts to 173.4 acres of essential habitat for Peninsular Bighorn Sheep (PBS), 137.4 acres of Flat Tailed Horned Lizard (FTHL) occupied habitat, four occupied burrowing owl burrows and 26 acres of burrowing owl foraging habitat. Alternative 2 would have fewer impacts, particularly to PBS (161.1 acres) and FTHL (123.5 acres). Alternative 3 would have fewer impacts than Alternatives 1 and 2, with 148.3 acres of direct impacts to PBS and 50.1 acres of direct impacts to FTHL. Alternatives 4-6 would not result in any near-term impacts. Under Alternatives 4 and 6, some development of the site could eventually take place. The impacts of such development would depend on what sort of development, if any, is eventually proposed and approved, but if there is any development on the project site, there is likely to be some degree of impact to wildlife resources. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact with respect to such development.
- **Vegetation Resources.** This is an area where differences among the alternatives exist. Alternatives 1-3 would result in the loss of vegetation resources, including both direct and indirect impacts to sensitive communities and special status plants. Alternatives 1-3 would have significant impacts on these resources, with Alternative 1 directly impacting approximately 655 acres of vegetation communities (499 acres of temporary impacts and 156 acres of permanent impacts), Alternative 2 directly impacting approximately 616 acres of vegetation communities (467 acres of temporary impacts and 149 acres of permanent impacts), and Alternative 3 directly impacting approximately 495 acres of vegetation communities (370 acres of temporary impacts and 125 acres of permanent impacts). Alternatives 4-6 would not result in any near-term impacts. Under Alternatives 4 and 6, some development of the site could eventually take place. The impacts of such development would depend on what sort of development, if any, is eventually proposed and approved, but if the project site is developed, some degree of impact to vegetation resources would occur. Alternative 5 would not permit any wind energy development of the project site, and would therefore have no impact with respect to such development.

Table 2-6 presents a comparison of the differences in impacts among the alternatives described in Sections 2.3 and 2.4 above. The information in Table 2-6 is derived from the analysis of environmental consequences presented in Chapter 4.

Table 2-6. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude future wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future wind development
Air Resources	Temporary unavoidable adverse impacts during construction. Daily construction NOx and PM10 emissions exceed ICAPCD thresholds. Operation emissions well below ICAPCD thresholds for all criteria pollutants.	Lower annual/total construction emissions and O&M emissions than Alternative 1 due to reduced number of wind turbines.	Lower annual/total construction emissions and O&M emissions than those of Alternatives 1 & 2 due to reduced number of wind turbines.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Global Climate Change	Off-setting reductions in GHG emissions are greater than the direct emissions from construction and operation of the project.	Off-setting reductions in GHG emissions are less compared to Alternative 1 due to reduced number of WTGs.	Off-setting reductions in GHG are less compared to Alternatives 1 & 2 due to reduced number of WTGs.	No impact. .	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Cultural Resources	Avoidance of adverse physical impacts to prehistoric resources, historic resources, multi-component resources, and built-environment through project redesign and mitigation. Adverse impacts to the setting of a significant TCP/ historic district and contributing prehistoric resources assumed eligible for the National Register of Historic Places resulting from the conversion of a natural desert landscape to an industrial landscape.	Avoidance of adverse physical impacts to prehistoric resources, historic resources, multi-component resources, and built environment through project redesign and mitigation. Adverse impacts to the setting of a TCP and contributing prehistoric resources assumed eligible for the National Register of Historic Places resulting from the conversion of a natural desert landscape to an industrial landscape. Reduced potential for unanticipated discoveries of cultural resources for Alternative 2 relative to the reduction in the construction and O&M footprint compared to Alternative 1.	Avoidance of adverse physical impacts to prehistoric resources, historic resources, multi-component resources, and built-environment through project redesign and mitigation. Adverse impacts to the setting of a TCP and contributing prehistoric resources assumed eligible for the National Register of Historic Places resulting from the conversion of a natural desert landscape to an industrial landscape. Reduced potential for unanticipated discoveries of cultural resources for Alternative 3 relative to the reduction in the construction and O&M footprint compared to Alternatives 1 and 2.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table 2-6. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude future wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future wind development
Environmental Justice	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
Lands and Realty	Potential conflicts with existing land uses during construction and decommissioning. A General Plan Amendment (GPA), a zone change, and a conditional use permit (CUP) would be required.	Similar to Alternative 1; except construction would be completed in a single phase so the duration of impacts to existing land uses would occur over a shorter period of time.	Similar to Alternative 1; except construction would be completed in a single phase so the duration of impacts to would occur over a shorter period of time. No turbines would be constructed on private land; therefore, a GPA, zone change, and CUP would not be required.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Mineral Resources	Sand and gravel required for access roads and concrete manufacturing. Existing local mineral operations may experience temporary access restrictions associated with transport trips.	Slightly less sand/gravel required than Alternative 1 due to the construction of 18 fewer wind turbines. Temporary access restrictions to existing mineral operations would be slightly less because less material would be needed.	Less sand/gravel required due to construction of fewer wind turbines than Alternatives 1 & 2. Potential temporary access restrictions to existing mineral operations would be less than Alternatives 1 & 2 because less material would be needed.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project if one were proposed for the project site.
Multiple Use Classes	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
Noise	Short-term elevated noise levels on site and along traffic routes during construction and decommissioning. Noise level at nearest residence from on-site construction or decommissioning of 51 dBA Leq (1-hr). Operational noise from WTGs would be 43.1 dBA Leq at nearest residence. Majority of Ocotillo would experience noise levels from turbines between 40-	Construction and decommissioning noise impacts the same as Alternative 1, but would occur for a shorter period. Operational noise from the WTGs would be 42.9 dBA Leq at nearest residence. O&M impacts would be identical to Alternative 1.	Construction and decommissioning noise levels at nearest residence would decrease from 51 dBA Leq (1-hr) for Alternative 1 to 49 dBA Leq (1-hr). Operational noise from the WTGs would be 38.0 dBA Leq at the residence. Majority of Ocotillo would experience noise levels from wind turbines of less than 35 dBA Leq. Nomirage	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table 2-6. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude future wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future wind development
	35 dBA Leq. Nomirage would experience between 35-30 dBA Leq. More intensive O&M activities resulting in short-term elevated noise levels of 47 dBA Leq (1-hr) at nearest residence could occur during project operation, but such activities would be of limited duration.		would not be affected. O&M impacts would be slightly less than Alternative 1 resulting in noise levels of 45 dBA Leq (1-hr) at nearest residence.			
Paleontological Resources	Potential damage or destruction of unknown scientifically significant paleontological resources. 640.0 ac. disturbed with low potential. 23.9 ac. disturbed with moderate potential.	Potential damage or destruction of unknown scientifically significant paleontological resources. 598.7 ac. disturbed with low potential. 17.6 ac. disturbed with moderate potential.	Potential damage or destruction of unknown scientifically significant paleontological resources. 493.2 ac. disturbed with low potential. 2.6 ac. disturbed with moderate potential.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Public Health and Safety	Potential safety hazards to aircraft operations. Potential structure damage from seismic hazards. Potential temporary hazards during construction from release of hazardous materials and disruption to emergency access.	Similar to Alternative 1; however, the reduced number of turbines would slightly reduce potential hazards.	Similar to Alternative 1; however, the reduced number of turbines would reduce potential hazards.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Recreation	Temporary disruption to on-site recreation activities during construction. Permitted recreation activities would resume after construction is completed.	Similar to Alternative 1; however, fewer recreation areas would be disrupted during construction.	Similar to Alternative 1; however, less recreation areas would be disrupted during construction.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table 2-6. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude future wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future wind development
Social and Economic Issues	Employment of 246 workers during construction, 27 during operation. No new housing induced. Worker spending beneficial to local business revenues. Effects on property value smaller in comparison to other relevant factors and would diminish with time.	Similar to Alternative 1 but reduced proportionate to number of WTGs installed.	Similar to Alternative 1 but reduced proportionate to number of WTGs installed.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Soil Resources	Earth-disturbing activities could result in erosion and loss of topsoil.	Potential soil erosion and topsoil loss would be slightly less than Alternative 1, due to construction of fewer turbines.	Potential soil erosion and topsoil loss would be less than Alternative 1, due to construction of 50 fewer turbines.	No impact.	No impact.	No impact. Similar impacts the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Special Designations	Temporary disturbance from air pollutant emissions and noise. Temporary and permanent degradation from visual changes.	Same as Alternative 1.	Same as Alternative 1.	No impacts	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Transportation and Public Access	No substantial change in intersection or street segment operation during construction, O&M, or decommissioning. Two intersections would temporarily change Level of Service (LOS) levels from LOS A to LOS B during construction.	Same as Alternative 1.	Same as Alternative 1.	No impacts	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Vegetation Resources	Direct impacts to 664.1 ac. of vegetation communities (80.4 ac. of sensitive communities and 583.7 ac. of non-sensitive communities).	Direct impacts to 616.5 ac. of vegetation communities (75.5 ac. of sensitive communities and 541.0 ac. of non-sensitive communities).	Direct impacts to 496.0 ac. of vegetation communities (63.0 ac. of sensitive communities and 433.0 ac. of non-sensitive communities).	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the

Table 2-6. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude future wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future wind development
	Direct impacts include 483.1 ac. of temporary impacts and 181 ac. of permanent impacts. Direct impacts to 80,558 special status plants (six different species) during construction. Indirect impacts to sensitive vegetation communities and special status plant species would include fugitive dust and introduction and/or spread of invasive weeds.	Direct impacts include 447.0 ac. of temporary impacts and 169.5 ac. of permanent impacts. Direct impacts to 36,698 special status plants (five different species) during construction. Indirect impacts expected to be similar to and slightly less than Alternative 1.	Direct impacts include 355.2 ac. of temporary impacts and 140.8 ac. of permanent impacts. Direct impacts to 1,465 special status plants (three different species) during construction. Reduced level of indirect impacts to vegetation resources and special status plant species as compared to Alternatives 1 & 2.			project site.
Aquatic Resources (Federal & State Jurisdictional Areas)	Direct impacts to 5.57 ac. of ACOE-jurisdictional area (all impacts to non-wetland Waters of the US). Direct impacts to 23.20 ac. of CDFG jurisdictional area, including 18.73 ac. of vegetated communities and 4.47 ac. of unvegetated streambed. Indirect impacts would include spread of fugitive dust and introduction and/or spread of invasive weeds.	Direct impacts to 5.31 ac. of ACOE-jurisdictional area (all impacts to non-wetland Waters of the US). Direct impacts to 20.71 ac. of CDFG jurisdictional area, including 16.41 ac. of vegetated communities and 4.30 ac. of unvegetated streambed. Indirect impacts would be similar to and slightly less than Alternative 1.	Direct impacts to 3.61 ac. of ACOE-jurisdictional area (all impacts to non-wetland Waters of the US). Direct impacts to 10.71 ac. of CDFG jurisdictional area, including 7.65 ac. of vegetated communities and 3.06 ac. of unvegetated streambed. Reduced level of indirect impacts to jurisdictional areas as compared to Alternatives 1 & 2.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Visual Resources	Conversion of a natural desert landscape to a landscape dominated by industrial character. Long-term land scarring following project removal due to the large impact area, and slow recovery of vegetation.	Similar to Alternative 1.	Similar to Alternative 1, except that Alternative 3 would eliminate visual impacts in the NE corner of Site 1 (reducing impacts to residents of Ocotillo and travelers on S2). Also eliminates impacts at Site 2 (reducing impacts residents of Nomirage & Ocotillo and	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table 2-6. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude future wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future wind development
			travelers on SR 98 and I-8). The sense of structural proliferation would be reduced by limiting turbines to north side of I-8.			
Water Resources	Possible temporary overdraft and/or drawdown conditions could occur at groundwater wells near the Pine Valley supply well, if this is the source of water to be used for project construction, operation, and/or decommissioning. Earth-disturbing activities would alter site-specific drainage patterns and could temporarily degrade surface water quality as a result of erosion and sedimentation.	Proportionately less water during construction for concrete manufacturing and access road improvements (including dust control), resulting in a marginally lower potential than Alternative 1 to result in overdraft or drawdown. Slightly fewer jurisdictional drainages affected due to fewer road crossings than Alternative 1.	Proportionately less quantity of water would be required for concrete manufacturing and access road improvements than Alternatives 1 & 2. Fewer jurisdictional drainages affected due to fewer road crossings than Alternatives 1 & 2. Avoids drainage pattern alterations and potential flooding impacts on Site 2 and NE portion of Site 1.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.
Wildland Fire Ecology	Moderate potential for a wildfire during construction or decommissioning due to moderately risky site conditions and climate. Wildfire ignition possible if WTG rotor blades spin out of control. Lightning strikes could create power surges resulting in a fire. Low probability of a wildfire during operations due to site conditions and proposed activities; however, a wildfire could result in destruction of property, loss of life, and damage to natural resources.	Slightly less potential for a wildfire during construction and decommissioning than Alternative 1, as activities would be reduced. Slightly less potential for a wildfire during O&M than Alternative 1, as activities would be slightly reduced and there would be fewer WTGs that could potentially start a fire.	Less potential for a wildfire during construction and decommissioning than Alternatives 1 & 2, as activities would be reduced. Less potential for a wildfire during O&M than Alternatives 1 & 2, as activities would be reduced and there would be fewer WTGs that could potentially start a fire.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

Table 2-6. Comparison of Impacts by Alternative

Resource	Alternative 1: Proposed Action	Alternative 2: 137 Wind Turbine Generators	Alternative 3: 105 Wind Turbine Generators	Alternative 4: No ROW grant, County approval, or LUP Amendment	Alternative 5: No ROW grant or County approval; Approval of a LUP amendment to exclude future wind development	Alternative 6: No ROW grant or County approval; Approval of a LUP amendment to allow future wind development
Wildlife Resources	Direct impacts to 173.4 ac. of Essential Habitat for PBS, 137.4 ac. of FTHL-occupied habitat, 4 occupied burrowing owl burrows and 26 ac. of burrowing owl foraging habitat during construction. Indirect impacts would include spread of fugitive dust, use of night lighting, and introduction and/or spread of invasive weed species during construction and O&M. O&M activities would result in bird and bat collisions with wind turbines. O&M activities could result in disturbance to occupied FTHL habitat in the NE portion of Site 1 and 3 PBS lambing areas in the I-8 Island.	Direct impacts to 161.1 ac. of Essential Habitat for PBS, 123.5 ac. of FTHL-occupied habitat, 4 occupied burrowing owl burrows and 26 ac. of burrowing owl foraging habitat during construction. Indirect impacts would be similar to and slightly less than Alternative 1. O&M activities would result in the same types of impacts to bird and bat species due to collision with wind turbines, but the collision risk is slightly reduced due to 18 fewer wind turbines. O&M activities could result in disturbance to 3 PBS lambing areas in the I-8 Island and occupied FTHL habitat in the NE portion of Site 1.	Direct impacts to 148.3 ac. of Essential Habitat for PBS, 50.1 ac. of FTHL-assumed-occupied habitat, 4 occupied burrowing owl burrows and 26 ac. of burrowing owl foraging habitat during construction. Indirect impacts would be similar to and slightly less than Alternative 1. Bird and bat collision risk slightly reduced due to 50 fewer wind turbines. Indirect impacts to FTHL-occupied habitat reduced compared to Alternatives 1 & 2. O&M activities could result in disturbance to 3 PBS lambing areas in the I-8 Island and assumed-occupied FTHL habitat in the NE portion of Site 1.	No impact.	No impact.	No impact. Similar impacts to the Proposed Action could occur from a future wind energy project, if one were proposed for the project site.

2.7 Federal Lead Agency Preferred Alternative and CEQA Environmentally Superior Alternative

The "preferred alternative" is a preliminary indication of the federal responsible official's preference of action, which is chosen from among the Proposed Action and alternatives. The preferred alternative may be selected for a variety of reasons (such as the priorities of the particular lead agency) in addition to the environmental considerations discussed in the EIS. In accordance with NEPA (40 CFR §1502.14(e)), the BLM has identified its preferred alternative as the Refined Project. The BLM has determined that the Refined Project would not result in effects that are outside the spectrum of alternatives analyzed in the Draft EIS/EIR because the Refined Project configuration utilizes turbine sites that are already part of the existing alternatives analyzed in the Draft EIS/EIR with respect to Alternative 1, the Proposed Action. Therefore, the impacts associated with the construction, operation, maintenance, and decommissioning of wind turbines at those sites have already been fully disclosed and analyzed in the Draft EIS/EIR. Thus, the Refined Project is merely a reduction in scope and impact version of Alternative 1. Moreover, given its size, the impacts associated with the Refined Project (112 turbines) are similar to, or only slightly larger than, the impacts identified for Alternative 3 (105 turbines). As explained above, the Refined Project would further avoid direct impacts to identified cultural resources within the OWEF project site. The BLM has determined based on these considerations that the Refined Project does not constitute a "substantial change in the [P]roposed [A]ction ... relevant to environmental concerns" or significant new information bearing on the Proposed Action or its alternatives. (40 CFR 1502.9(c)(1), (2)).

In accordance with CEQA requirements, if the environmentally superior alternative is the No Project alternative, State CEQA Guidelines Section 15126.6(e)(2) requires the EIR to identify an environmentally superior alternative from among the other alternatives. In the case of the Proposed Action, the No Project alternative would be superior to any of the action alternatives because the impacts of implementing the Proposed Action would be avoided for the time being. Among the other alternatives, the County of Imperial has identified Alternative 3 (105 Wind Turbine Generators) as the environmentally superior alternative because it would involve installation of the fewest number of turbines and, therefore, would result in the least environmental disturbance. Consequently, Alternative 3 would have the smallest impact on natural habitat and the lowest potential for disturbing cultural and paleontological resources. It would also generate the least amount of air pollutants during construction and would require the least amount of water for construction. Visual impacts would also be reduced due to the fewer number of turbines compared to the other action alternatives. While physical impacts on the environment at the project site would be reduced with Alternative 3, this alternative would not fully meet the Applicant's objectives as it would only enable the generation of approximately 315 MW of wind energy rather than the 465 MW sought by the Applicant.

2.8 Alternatives Considered but Eliminated from Detailed Analysis

The ability of potential alternatives to achieve the project's purpose and stated objectives is one of the criteria used to evaluate alternatives. The NEPA (CFR Title 40 §1502.13) and the CEQA (State CEQA Guidelines §15124[b]) both explain that an agency's statement of objectives or purpose and need should describe the underlying purpose of the proposed project and reasons to which an agency is responding.

Similar to CEQA, NEPA allows consideration of alternatives that meet "most" of the project purpose. As noted in the findings for *Natural Resources Defense Council v. Morton* (458 F.2d 827 [D.C. Cir. 1972]), "[n]or is it appropriate to disregard alternatives merely because they do not offer a complete solution to the problem." The Applicant's search for a suitable site began with an evaluation of the proposed OWEF's purpose and objectives, which include:

- To construct and operate a cost competitive 465-MW wind energy facility to provide a renewable and reliable source of power to California's investor-owned utilities (IOU);
- To locate the project on contiguous lands with high wind potential to maximize operational efficiency while minimizing environmental impacts and water use;
- To minimize environmental impacts and land disturbance by locating the project near existing transmission infrastructure and roads and by avoiding sensitive environmental areas, recreational resources and wildlife habitats (e.g., Desert Wildlife Management Areas, Areas of Critical Environmental Concern);
- To develop a source of renewable electric power that can be placed into service in an expeditious manner by interconnecting to San Diego Gas and Electric's (SDG&E) Sunrise Powerlink 500-kV transmission line; and
- To assist California and its IOUs in meeting the State's Renewables Portfolio Standard (RPS) and GHG emissions reduction requirements, including the requirements set forth in Senate Bill (SB) 1078 (California RPS Program), Assembly Bill (AB) 32 (California Global Warming Solutions Act of 2006), and Senate Bill (SB) X1-2 to increase the state's Renewable Energy Standard to 33 percent renewable power by 2020. In particular:
    - California's RPS requires investor-owned utilities, publicly owned utilities, and energy service providers to increase purchases of renewable energy such that at least 33 percent of retail sales are procured from renewable energy resources by December 31, 2020. In the interim, each entity is required to procure an average of 20 percent of renewable energy for the period of January 1, 2011, through December 31, 2013; 25 percent by December 31, 2016, and 33 percent by 2020.
    - California's GHG emission reduction goals set forth in AB 32 that requires the State's GHG emissions be reduced to 1990 levels by 2020.

Consistent with the NEPA Compliance for Utility-Scale Renewable Energy ROW Authorizations (IM 2011-059; BLM, 2011), alternatives not carried forward did not meet project purpose and need, project objectives, were deemed to be technically disadvantageous, or had greater environmental impacts than the currently proposed project alternatives.

2.8.1 Private Land Alternative

Private lands within Imperial County were considered for siting the proposed wind energy facility. Although the BLM has no jurisdiction over the siting of the project on private land, the use of private lands was considered, and Imperial County, the CEQA Lead Agency for this EIS/EIR, has discretionary authority to approve a wind energy facility proposed on private land within unincorporated Imperial County.

Two general regions within Imperial County have a "Fair" to "Superb" wind resource, as defined by the National Renewable Energy Laboratory (NREL) and shown on Figures 2.7-1 through 2.7-3. A small portion of the southwestern corner of the County has a "Good" to "Superb" wind energy resource, and a small portion of the eastern third of the County has a "Fair" to "Excellent" wind resource. A majority of the wind resource area within the eastern part of the County is located on Department of Defense land, and the remainder in the eastern part of the County is located on BLM land scattered with small in-holdings of private land. The southwestern corner of the County is primarily BLM land scattered with small in-holdings of private land. The southwestern-most corner of the County where the wind resource is "Excellent" to "Superb" is within the Jacumba Wilderness and the Yuha Basin Area of Critical Environmental Concern (ACEC), located south and southwest of the project site, respectively. Large areas of private land that could accommodate a wind energy facility similar in size to the Proposed Action are located in the central and northwestern portion of the County, where wind resources are "Poor" to "Marginal." By comparison, the wind resources on the project site are rated "Good" or better.

As described above, wind resource potential on private land in Imperial County is not consistently rated as "Good" or higher, and, more importantly, those lands that are both highly rated and available for development are not aggregated. Therefore, in order to construct and operate a project capable of generating up to 465 MW of power from wind energy on those parcels, the wind towers would need to be constructed in clusters, where land and wind potential are both available, and an extensive system for power collection from these parcels would need to be designed and implemented creating a much larger project footprint than the proposed project to generate the same amount of power. Such a footprint would be technically challenging and would make the project non-competitive from a cost perspective, and not likely to provide a reliable source of power to California's IOUs contrary to the proposed OWEF's purpose and objectives. Due to a lack of aggregated parcels of private lands large enough to accommodate the Proposed Action within a "Good" or better wind resource area, a private lands alternative in Imperial County is technically and economically infeasible for both CEQA and NEPA purposes. Additionally, under NEPA a private land alternative does not respond to BLM's purpose and need for the Proposed Action, namely, to consider an application for the authorized use of public lands for a wind energy generation facility.

2.8.2 Alternative BLM-Administered Land

Much of the BLM-administered land in the areas with the highest wind energy resource in Imperial County is excluded from potential development by special designations such as wilderness areas and ACECs. For those lands outside those designated area, many potentially suitable areas are in use or are proposed for other wind energy projects (see "BLM Wind Energy ROW" areas on Figure 2.7-1). During the site identification process, there was one large swathe of BLM land with a "Fair" to "Good" wind resource that is not currently encumbered by any other known ROW Grant applications. This site is located in the northeastern part of the County, directly east of the Chocolate Mountain Naval Aerial Gunnery Range. The wind resource of this site is of substantially lower quality from a wind resource perspective than the site of the Proposed Action, and therefore development of this site would not meet the project's objective to locate the project on contiguous lands with high wind potential in order to maximize operational efficiency while minimizing environmental impacts. Since the quality of the wind resource is lower, more turbines and a larger project footprint would be required to get to the desired level of MWs. Thus, an alternative wind energy facility located there would not be feasible and would not achieve the purpose and need of the proposed OWEF for either CEQA or NEPA purposes.

2.8.3 Alternate Wind Turbine Layouts

193 Wind Turbine Generators. This alternative was originally proposed by the Applicant and includes 35 more WTGs (193 total) than the Proposed Action and would be comprised of a combination of 3-MW and 2.3-MW turbines totaling up to 550 MW. Compared to the proposed OWEF, approximately half of the additional WTGs would be located in the southwestern portion of the site (on BLM-administered lands), with the remaining WTGs scattered throughout the site. In general, the siting of the WTGs are similar to the Proposed Action, but not identical as additional 'micro-siting' was subsequently completed to minimize direct impacts on cultural resources, biological resources, and surface drainage features as part of the development of the Proposed Action. The general location of the substation, switchyard, batch plant, rail yard, and MET towers would be the same as the Proposed Action. The O&M facility, however, would be located approximately 0.35 mile (1,850 feet) northwest of the location for the O&M facility under the Proposed Action. Based on information developed from biological resource surveys, cultural resource surveys, and a delineation of waters of the U.S., the Applicant elected to abandon this original site plan and modify the project to develop a Proposed Action that avoided sensitive biological and cultural resources and minimized impacts on jurisdictional waters, and therefore this alternative layout was not carried forward for further analysis.

106 Wind Turbine Generators. This alternative is conceptually similar to the proposed OWEF, but with 49 fewer WTGs (106 total), where turbines were eliminated specifically to reduce or avoid environmental resources, primarily jurisdictional waters. While this alternative was specifically developed to attempt to further reduce impacts to jurisdictional waters, it was determined that the impacts to jurisdictional waters were comparable to the 105 Wind Turbine Generators Alternative (Alternative 3) that was carried forward for review. The locations of the substation, switchyard, O&M facility, batch plant, and rail yard would be the same as the Proposed Action. The MET tower at Site 2, however, would be eliminated, and the MET tower in the northeast portion of Site 1 would be moved farther east away from the community of Ocotillo. Due to its substantial similarity to Alternative 3 from both a layout and impact perspective, this alternative is not carried forward for further analysis.

2.8.4 Reconfiguration Alternative

An alternative to the Proposed Action could include reconfiguring ancillary facilities on the project site, such as placing the substation on the private parcel rather than on BLM-administered lands. Placement of the substation on the private parcel would require reconfiguring the Sunrise Powerlink 500-kV transmission line to go into and out of the substation, which would instead be located 0.8 mile east of the existing transmission line alignment rather than immediately adjacent, and construction of the switchyard in generally the same location as the currently proposed substation/utility switchyard. This alternative places the substation on a private parcel where a home exists and the area required for a substation may not be sufficient without encroaching on the home. Also, greater land disturbance would result from separating the substation from the utility switchyard, as well as impacting multiple areas. Considering these additional impacts, the reconfiguration alternative was not considered to be a reasonable alternative means of meeting the purpose and need for the action for either CEQA or NEPA purposes.

2.8.5 Different Project Phasing

Construction could be completed utilizing different phasing than proposed under the Proposed Action. The Proposed Action includes 137 WTGs (217 to 408 MW) under Phase I and 18 WTGs (30 to 57 MW) under Phase II (Output ranges assume WTGs are 1.6 MW to 3 MW) for a maximum total output of 465 MW (Assumes all WTGs are 3 MW). Under this alternative, Phase I would include 105 WTGs to meet the Power Purchase Agreement amount of 315 MW (requires all WTGs to be 3 MW) and Phase II would include 50 WTGs (80 to 150 MW, assuming combination of 1.6 to 3-MW WTGs).

This alternative would be the same as the Proposed Action and would not change the ultimate build out of the project. It would change the temporal occurrence of some impacts. For example, it would potentially temporarily reduce impacts to residences by building WTGs farthest away from residences first, but since the ultimate build out of the operation and maintenance of the project would occur, this alternative would have the same environmental impacts as the Proposed Action.

2.8.6 Other Types of Energy Projects

For renewable energy ROWs, there are many different types of alternatives that are considered by the BLM and the Applicant during pre-application activities and that are suggested to the BLM by external parties through scoping and comments on the draft NEPA document. These alternatives include solar, geothermal, biomass, tidal, and wave energy. Traditional sources of energy could also be considered, which include coal, natural gas, and nuclear energy. Conservation and demand-side management could be implemented rather than creating a new source of energy. Conservation and demand-side management consist of a variety of approaches to reduce electricity use, including energy efficiency and conservation, building and appliance standards, and load management and fuel substitution. Another option would be distributed solar generation. A distributed solar alternative would consist of PV panels that would absorb solar radiation and convert it directly to electricity. The PV panels could be installed on building rooftops or in other disturbed areas such as parking lots or adjacent to existing substations. An analysis of the specific types of alternative energy projects identified above is discussed in Table 2-7 below. Generally, these alternatives were not carried for NEPA purposes by the BLM because they do not respond to the Agency's purpose and need for the Proposed Action to respond to a ROW application for a wind energy generation facility on public lands.

With respect to distributed generation, the present electric grid was not designed to handle high loads of distributed renewable energy systems. Distributed energy is considered more suitable as a supplement to renewable energy such as wind or solar projects as there is currently no mechanism to ensure that sufficient energy will be generated (or the need for it displaced) to remove the need for projects such as the proposed OWEF. Additionally, the Energy Policy Act of 2005 established a goal for the Secretary of the Interior to approve 10,000 MWs of electricity from non-hydropower renewable energy projects located on public lands. Given the current state of technology only utility-scale renewable energy generation projects are reasonable alternatives to achieve that level of production. Furthermore, the BLM has no authority or influence over the installation of distributed generation systems, other than on its own lands, which the BLM is currently evaluating through other initiatives separate from this Proposed Action

Table 2-7 below provides additional explanation for why specific alternative technologies were not carried forward for further analysis, including an explanation of why they were eliminated under CEQA.

Table 2-7. Other Types of Energy Projects Eliminated from Analysis

Alternative	Purpose/Objectives Criteria	Feasibility Criteria	Environmental Criteria
Solar Power Project	***Partially meets objectives (renewable energy).*** Does not meet the project purpose and need (wind power).	***Meets feasibility criteria.*** This alternative was developed by the Applicant as a feasible alternative.	***May not meet environmental criteria.*** This alternative would require more land disturbance for installation of solar panels and access roads and thereby more potential effects to cultural and biological resources.
Geothermal Power Project	***Partially meets objectives (renewable energy).*** Does not meet the project purpose and need (wind power). Would not likely meet generation objective, as multiple projects would be required to achieve 465 MW of geothermal energy.	***Does not meet feasibility criteria.*** Geothermal plants must be built near geothermal reservoir sites. Project site is not a geologically suitable area or source of geothermal energy. In addition, it would likely be economically infeasible for the Applicant to implement due to the need for multiple siting and environmental review processes to achieve the same output of energy.	***Meets environmental criteria.*** If a geothermal power project were feasible it would reduce effects on air quality, and cultural and biological resources as geothermal power projects use less land; however, they can cause visual impacts and produce waste and byproducts such as hydrogen sulfide (H_2S) that can have impacts.
Biomass Project	***Partially meets objectives (renewable energy).*** Does not meet the project purpose and need (wind power). Would not meet generation objective of 465 MW, as most biomass plant capacities are in the 3- to 10-MW range.	***May not meet feasibility criteria.*** Major biomass fuels include forestry and mill wastes, agricultural field crops and food processing wastes, construction and urban wood waste. These sources may need to be hauled great distances substantially increasing operational costs and viability of a biomass project in this location. In addition, it would likely be economically infeasible for the Applicant to implement due to the need for multiple siting and environmental review processes to achieve the same output of energy.	***May not meet environmental criteria.*** This alternative would require less land for each facility thereby reducing effects to cultural and biological resources; however, multiple facilities would be needed to meet the generation objective which would increase impacts. Air quality, traffic, and noise impacts would increase as a result of the long distances required to haul biomass fuel sources. Operational emissions from the facility would increase air quality impacts, health risks (from toxic air contaminants), and could adversely affect visibility.
Tidal Energy Project	***Partially meets objectives (renewable energy).*** Does not meet the project purpose and need (wind power).	***Does not meet feasibility criteria.*** Project area is not located in proximity to a bay or estuary with large differences in elevation between high and low tides where a dam (a.k.a. barrage) could be built, or located near the ocean, such that tidal energy generation is not feasible.	***May not meet environmental criteria.*** If a tidal energy project were feasible, aesthetic, biological resource, vessel traffic, and recreation impacts may increase.
Wave Energy Project	***Partially meets objectives (renewable energy).*** Does not meet the project purpose and need (wind power).	***Does not meet feasibility criteria.*** Project area is not located in proximity to a large body of water with constantly strong waves, and therefore wave energy is not a technically feasible alternative.	***May not meet environmental criteria.*** Even if a wave energy project were feasible, aesthetic, biological resource, vessel traffic, and recreation impacts may increase. There would also be potential impacts on the size and amount of waves with possible effects to beaches (e.g., changes to sediment transport processes).
Natural Gas Project	***Does not meet objectives.*** Does not meet the project purpose and need (wind power). Does not provide renewable energy required to meet California Renewables Portfolio Standard requirements.	***Meets feasibility criteria.*** Generation of electricity from combustion of natural gas is a common and proven technology.	***Would not meet environmental criteria.*** Air quality impacts would increase as a result of operational emissions from the power plant. Impacts would occur off site from construction of natural gas and water supply lines resulting in potentially greater air quality, biological, cultural, hazardous materials, land use, utilities, and visual resources impacts.

Table 2-7. Other Types of Energy Projects Eliminated from Analysis

Alternative	Purpose/Objectives Criteria	Feasibility Criteria	Environmental Criteria
Coal Project	***Does not meet objectives.*** Does not meet the project purpose and need (wind power). Does not provide renewable energy required to meet California Renewables Portfolio Standard requirements.	***Does not meet feasibility criteria.*** Generation of electricity from combustion of coal is a proven technology, but is not common to the project region. There is no readily available source of coal in the project region. Furthermore, large quantities of water are generally required to produce steam for cooling, which is not available at or near the project site.	***Would not meet environmental criteria.*** Impacts associated with air quality, greenhouse gas, and health risks would increase substantially. Impacts would also occur from transportation of coal to the power plant. Impacts would occur off site from construction of a water supply line resulting in potentially greater air quality, biological, cultural, land use, utilities, and visual resources impacts.
Nuclear Energy Project	***Does not meet objectives.*** Does not meet the project purpose and need (wind power). Does not provide renewable energy required to meet California Renewables Portfolio Standard requirements.	***Does not meet feasibility criteria.*** Generation of electrical from nuclear reaction is a proven technology; however, California law prohibits construction of new nuclear power plants until an approved technology exists for the permanent disposal of spent fuel from these facilities. As such, this alternative is not feasible.	***Would not meet environmental criteria.*** Greater impacts would result from a nuclear power plant, including greater hazardous materials, land use, hydrology/water quality, and public safety impacts, among others.
Conservation and Demand-Side Management	***Does not meet most objectives.*** Does not meet the project purpose and need (wind power). Does not provide renewable energy required to meet California Renewables Portfolio Standard requirements.	***Does not meet feasibility criteria.*** Not considered feasible due to the magnitude of projected generation capacity needed to meet project objectives and California Renewable Portfolio Standard requirements.	***Meets environmental criteria.*** Would reduce effects on all environmental resources.
Distributed Solar Generation	***Partially meets objectives (renewable energy).*** Does not meet the project purpose and need (wind power generation on public lands). Would not likely meet generation objective or be implemented in a timeframe to meet the Renewables Portfolio Standard requirements. Distributed generation systems typically generate less than 10,000 kW.	***Does not meet feasibility criteria.*** Implementation would likely be economically infeasible. Additionally, barriers exist for distributed solar generation related to interconnection with the electrical distribution grid. The present electric grid, built decades ago, was based on a centralized generation approach and was not designed to handle high levels of distributed renewable energy systems. As a result, distributed energy can act as a supplement rather than as a substitute for sources of renewable energy such as wind or solar projects. Moreover, no mechanism exists to ensure that sufficient energy would be generated (or the need for it displaced) to remove the need for projects such as the proposed OWEF.	***Meets environmental criteria.*** Would reduce on-site impacts and would generally be located in previously disturbed areas.

3.1 Introduction

Chapter 3 describes the environmental components in the project area that could be affected by implementation of the OWEF. Chapter 3 describes resources, resource uses, special designations, and other important topics (i.e., public health and safety, social and economic considerations, and environmental justice conditions) that may be impacted by the OWEF. "Resources" include air, climate change, soil, water, vegetative communities, wild horses and burros, wildlife and plant species, wildland fire ecology and management, as well as cultural, paleontological, and visual resources. "Resource uses" include livestock grazing management, minerals, recreation management, transportation and public access, and lands and realty. "Special designations" include areas of critical environmental concern (ACECs), wilderness areas (WAs), and wilderness study areas (WSAs).

Information and data used to prepare this chapter were obtained from the CDCA Plan, various BLM planning and NEPA documents. Information and data were also collected from many other related planning documents and research publications prepared by various federal and state agencies as well as from private sources pertaining to key resource conditions and resource uses found within the project area. The purpose of this chapter is to provide a description of affected resources and BLM program areas within the existing environment of the project area, which will be used as a baseline to evaluate and assess the impact of the alternatives described in Chapter 2. Descriptions and analyses of the impacts themselves are presented in Chapter 4, Environmental Consequences.

3.2 Air Resources

3.2.1 Environmental Setting

3.2.1.1 Meteorological Conditions

The Imperial Valley portion of Imperial County has a subtropical desert climate characterized by low precipitation, hot summers, mild winters, low humidity, and strong temperature inversions. As described in Table 3.2-1, based on historic weather data from El Centro, average summer (June-September) high and low temperatures in the study area range from 107°F to 68°F, respectively. Average winter (December-March) high and low temperatures in the study area range from 79°F to 41°F. Total rainfall in El Centro averages 2.96 inches per year with about 60 percent of the total rainfall occurring during the winter rainy season (November-March) and 35 percent occurring during late summer and early fall desert monsoon season (August-October) (WC, 2010). The Imperial Valley is in the rain shadow of the Santa Rosa and San Jacinto mountains, which greatly reduces the winter season rainfall in comparison with coastal and mountain areas located to the west.

Table 3.2-1. El Centro Monthly Average Temperature and Precipitation

Month	Temperature (°F)		Precipitation (inches)
	Maximum	Minimum	
January	70	41	0.51
February	75	45	0.36
March	79	49	0.31
April	86	54	0.05
May	94	61	0.03
June	103	68	0.01
July	107	76	0.06
August	106	77	0.32
September	101	71	0.36
October	91	59	0.35
November	78	47	0.17
December	70	41	0.43

Source: The Weather Channel, 2010.

The OWEF project site area, although located relatively close to El Centro, is located further from the Salton Sea and the Imperial Valley agricultural areas than it is from El Centro, and so would on average have lower relative humidity than El Centro, has much higher average wind speeds, and would have temperatures that are often influenced from areas west of the project site which could be higher or lower than those occurring in El Centro. However, the generalized weather conditions summarized above (low precipitation, hot summers, mild winters, low humidity, and strong temperature inversions) apply to both the OWEF project site and El Centro.

The project site area, as would be expected for a wind energy project site, is characterized by predominant and strong winds from the southwest and west southwest. Winds from these two directions, as determined by data from Boulevard, located 10 miles west southwest of the project site, occur approximately 53 percent of the time with the average hourly wind speeds of 8.8 miles per hour and 9.1 miles per hour from each direction, respectively (WRCC, 2011). The Applicant also provided over 7,700 hours of wind data collected in 2010 from a monitoring tower at the project site that indicates a median wind speed of 10.7 miles per hour at a 10-meter height and that the wind direction frequency for winds from the southwest and west southwest occur approximately half of the time.

3.2.1.2 Existing Air Quality

The United States Environmental Protection Agency (USEPA), California Air Resources Board (CARB), and the local air districts classify an area as attainment, unclassified, or nonattainment depending on whether or not the monitored ambient air quality data shows compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively. The National and California Ambient Air Quality Standards (NAAQS and CAAQS) relevant to the proposed OWEF are provided in Table 3.2-2.

Table 3.2-2. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone (O_3)	1-hour	0.09 ppm	—
	8-hour	0.070 ppm	0.075 ppm[a]
Carbon monoxide (CO)	1-hour	20 ppm	35 pm
	8-hour	9.0 ppm	9.0 ppm
Nitrogen dioxide (NO_2)	1-hour	0.18 ppm	0.100 ppm[b]
	Annual mean	0.030 ppm	0.053 ppm
Respirable particulate matter (PM10)	24-hour	50 µg/m^3	150 µg/m^3
	Annual mean	20 µg/m^3	—
Fine particulate matter (PM2.5)	24-hour	—	35 µg/m^3
	Annual mean	12 µg/m^3	15 µg/m^3
Sulfur dioxide (SO_2)	1-hour	0.25 ppm	0.075 ppm[b]
	3-hour	—	0.5 ppm
	24-hour	0.04 ppm	0.14 ppm
	Annual mean	—	0.03 ppm

Source: CARB, 2010a.

ppm=parts per million; µg/m^3= micrograms per cubic meter; "—" = no standard

Notes:

[a] The attainment of this federal standard is based on the three-year average of the fourth-higest daily maximum 8-hour average ozone concentration.

[b] The new federal 1-hour NO_2 and SO_2 standards are based on the 98th and 99th percentile of daily hourly maximum values, respectively.

The proposed OWEF is located north, south, and west of the unincorporated community of Ocotillo, in Imperial County. The project site is located within the Salton Sea Air Basin (SSAB), under the jurisdiction of Imperial County Air Pollution Control District (ICAPCD or District). The project area within the SSAB is designated as non-attainment for the federal and state ozone and PM10 standards. In 2009 the USEPA determined that Imperial County had attained the federal 1997 8-hour ozone standard, but the official redesignation to attainment is awaiting approval of the ozone maintenance plan. The project area is designated as attainment or unclassified for the state and federal CO, NOx, SOx, and PM2.5 standards. An area approximately 10 miles east of the OWEF project site in Imperial County surrounding the more urbanized cities of El Centro and Calexico is designated as nonattainment for the 24-hour PM2.5 standard. Table 3.2-3 summarizes the federal and State attainment status of criteria pollutants for the project site area based on the NAAQS and CAAQS, respectively.

Table 3.2-3. Attainment Status for the Project Area within the Salton Sea Air Basin

Pollutant	Attainment Status	
	Federal	State
Ozone	Moderate Nonattainment	Moderate Nonattainment
CO	Attainment[a]	Attainment
NO_2	Attainment[b]	Attainment
PM10	Serious Nonattainment	Nonattainment
PM2.5	Attainment[c]	Attainment[a]
SO_2	Attainment	Attainment

Source: CARB, 2010b; EPA, 2010

Note:

[a] Attainment = unclassified

[b] The federal 1-hour NO_2 standard attainment/nonattainment designation will not be completed until 2012.

[c] Areas east of the site surrounding El Centro and Calexico are designated as nonattainment of the federal PM2.5 standard.

3.2.1.3 Criteria Air Pollutants

The following is a general description of the criteria air pollutants that would be emitted by the project's construction and operation and a summary of the monitored concentrations for each pollutant at sites near to the project site. The SSAB has nine- monitoring stations to measure air quality. The most representative monitoring site, the El Centro 9th Street Station, within the SSAB has been used to represent the background air quality conditions for the proposed project site. Table 3.2-4 provides a summary of the last three years of available ambient monitoring data.

Table 3.2-4. Background Ambient Air Quality Data – El Centro 9th Street Monitoring Station

CARB Air Monitoring Station	Number of Days Exceeding NAAQS			Number of Days Exceeding CAAQS			Maximum Concentration (ppm or µg/m³)[a]		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
1-Hour Ozone	1	0	0	4	9	3	0.135	0.111	0.122
8-Hour Ozone	2	11	10	9	30	29	0.084	0.085	0.082
8-Hour CO	0	0	1	0	0	1	1.71	3.20	9.69
1-Hour NO_2	--	--	--	0	0	0	0.081	0.122	0.141
1-Hour NO_2 [b]	--	--	--	--	--	--	0.047	NA	NA
Annual NO_2	--	--	--	--	--	--	0.009	0.008	0.004
24-Hour PM10 - Federal	0	13.1	13.1	--	--	--	88.2	243.1[c]	69.4
24-Hour PM10 – State	--	--	--	25.5	104.6	NA	88.7	233.7[c]	70.2
Annual PM10 - State	--	--	--	--	--	--	32.7	47.9	NA
24-Hour PM2.5 - Federal [d]	0	3.1	0.0	--	--	--	ND	17.9	13.4
Annual PM2.5 - Federal	--	--	--	--	--	--	ND	7.9	6.5
Annual PM2.5 - Sate	--	--	--	--	--	--	ND	8.0	6.6

Source: CARB, 2011; CARB, 2010c;

NA = Not Available; ND = No Reported Data; "--" = Not Applicable

Notes:

[a] Gaseous pollutant (ozone, NO_2, and CO) concentrations are shown in ppm and particulate (PM10 and PM2.5) concentrations are shown in µg/m³.

[b] 98th percentile of maximum daily 1-hour concentrations.

[c] These data may represent exceptional natural events (high wind or fire.)

[d] 98th percentile of federal 24-hour PM2.5.

Ozone (O_3)

In the presence of ultraviolet radiation, both nitrogen oxides (NOx) and volatile organic compounds (VOCs) go through a number of complex chemical reactions to form ozone. Table 3.2-4 includes the maximum hourly concentration of O_3 and the number of days O_3 exceeds the federal and State standards. As shown in Table 3.2-4, ozone continues to exceed the State 1-hour standard and both the federal and State 8-hour ozone standards. The project site area is designated nonattainment for the federal and State ozone standards.

Carbon Monoxide (CO)

CO is primarily a byproduct of motor vehicle exhaust, which contributes more than two-thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO. Table 3.2-4 summarizes the CO monitoring data collected over the past three years. The project site area is designated attainment of the State and federal CO standards.

Nitrogen Dioxide (NO_2) and Nitrogen Oxides (NOx)

Nitrogen dioxide is a reddish brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide. NOx, the generic term for a group of highly reactive gases that contain nitrogen and oxygen in varying amounts, plays a major role in the formation of ozone, particulate matter (PM), and acid rain. NOx emissions result from high-temperature combustion processes such as vehicle exhaust emissions and power plants. Home heaters and gas stoves can also produce substantial amounts of NO_2 in indoor settings. The majority of the NOx emitted from combustion sources is in the form of NO, while the balance is mainly NO_2. NO is oxidized by O_3 in the atmosphere to NO_2 but some level of photochemical activity is needed for this conversion. Table 3.2-4 summarizes the NO_2 monitoring data collected over the past three years. The project site area is designated attainment of the State and federal NO_2 standards. It is expected that the site area would also be designated attainment of the new federal 1-hour standard.

Particulate Matter (PM)

PM pollution consists of very small aerosol and solid particles floating in the air. PM is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Some PM, such as pollen, is naturally occurring. PM also forms when gases emitted from motor vehicles and industrial sources undergo chemical reactions in the atmosphere. The USEPA currently regulates two types of PM emissions, PM10 and PM2.5. PM10 refers to particles less than or equal to 10 microns in diameter and PM2.5 refers to particles less than or equal to 2.5 microns in diameter.

Respirable Particulate Matter (PM10). PM10 can be emitted directly or it can be formed many miles downwind from emission sources when various precursor pollutants interact in the atmosphere. Gaseous emissions of pollutants like NOx, sulfur oxides (SOx), VOCs, and ammonia, given the right meteorological conditions, can form PM in the form of nitrates (NO_3), sulfates (SO_4), and organic particles. These pollutants are known as secondary particulates, because they are not directly emitted, but are formed through complex chemical reactions in the atmosphere. Table 3.2-4 summarizes the ambient PM10 monitoring data collected over the past three years. The table includes the maximum 24-hour and annual arithmetic average concentrations and the number of days above the federal and State standards. The project site area is designated nonattainment of the State and federal PM10 standards.

Fine Particulate Matter (PM2.5). Fine particulate matter, or PM2.5, is derived mainly from either the combustion of materials, or from precursor gases (SOx, NOx, and VOCs) through complex reactions in the atmosphere. PM2.5 consists mostly of sulfates, nitrates, ammonium, elemental carbon, and a small portion of organic and inorganic compounds. Table 3.2-4 summarizes the ambient PM2.5 monitoring data collected over the past three years. The project site area is designated attainment of the State and federal PM2.5 standards.

Sulfur Dioxide (SO_2)

Sulfur dioxide is typically emitted as a result of the combustion of a fuel containing sulfur. Fuels such as natural gas contain very little sulfur and consequently have very low SO_2 emissions when combusted. By contrast, fuels high in sulfur content such as coal or heavy fuel oils can emit very large amounts of SO_2 when combusted. Sources of SO_2 emissions come from every economic sector and include a wide variety of fuels, gaseous, liquid and solid.

As shown in Table 3.2-4, the ICAPCD is designated attainment or unclassified for all SO_2 State and federal ambient air quality standards. Due to the restrictions for the use of high sulfur fuels, reduction in gasoline and diesel sulfur contents and reduction in SO_2 emissions from other industrial sources (such as refineries), SO_2 pollution is no longer a major air quality concern in most of California including the project site area, which is designated attainment of the State and federal SO_2 standards. SO_2 monitoring data is only collected at the Calexico-Ethel Street monitoring station within the SSAB. SO_2 monitoring data collected at this monitoring station does not represent the SO_2 emissions in the project site area since the Calexico-Ethel Street monitoring station is greatly affected by SO_2 emissions from Mexicali, Mexico. Therefore, no SO_2 monitoring data is presented in Table 3.2-4.

Summary

As discussed above and presented in Table 3.2-3 and Table 3.2-4, the project area is designated nonattainment for the State and the federal ozone and PM10 standards. The project area is designated as attainment for the PM2.5, CO, NO_2, and SO_2 federal and State standards.

3.2.1.4 Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

The nearest residential receptors for the project are located immediately south of the northeastern portion of the project site in the unincorporated community of Ocotillo and east of the southeast portion of the project in the unincorporated community of Coyote Wells. There are no other types of sensitive receptors (schools, hospitals, etc.) located near the project site.

3.2.2 Applicable Regulations, Plans, and Standards

3.2.2.1 Federal

The District is responsible for issuing federal New Source Review (NSR) permits and has been delegated enforcement of the New Source Performance Standards (NSPS). The federal NSR program requires air quality construction and operating permits for stationary sources when they exceed specific emissions thresholds for nonattainment pollutants, NSR air quality permits, and for attainment pollutants, Prevention of Significant Deterioration (PSD) air quality permits. The NSPS are emission control/performance standards for specific types of stationary sources, such as boilers, cement kilns, gas turbines, etc. However, this project does not include stationary sources of air pollution that would have emissions high enough to trigger federal air quality permitting, or that would be subject to any of the NSPS.

The proposed OWEF is located in a federal nonattainment area and requires the approval of a federal agency (BLM). Therefore, the proposed project is subject to the general conformity regulations (40 CFR Part 93). The project area is classified as moderate nonattainment of the federal ozone ambient air quality standard and serious nonattainment of the federal PM10 ambient air quality standard. The general conformity emissions applicability thresholds for these nonattainment classifications are 100 tons/year of ozone precursor emissions (NOx and VOCs), and 70 tons/year of PM10 emissions.

The USEPA has set emission standards for nonroad diesel engines, including those used on construction cranes. These standards are published in the US Code of Federal Regulations, Title 40, Part 89 *[40 CFR Part 89]*.

3.2.2.2 State

As discussed above in Section 3.2.1.2, CARB has established CAAQS for many of the same pollutants covered under the federal NAAQS that are as stringent as or more stringent than the NAAQS. Pollutants regulated under these standards include O_3, NO_2, CO, PM10, PM2.5, SO_2, lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Additional information regarding the CAAQS that are relevant to the project is provided Section 3.2.1.2.

CARB also has on-road and off-road engine emission reduction programs that indirectly affect the project's emissions through the phasing in of cleaner on-road and off-road equipment engines. Additionally, CARB has a Portable Equipment Registration Program that allows owners or operators of portable engines and associated equipment to register their units under a statewide portable program to operate their equipment, which must meet specified program emission requirements, throughout California without having to obtain individual permits from local air districts.

The State has also enacted a regulation for the reduction of diesel particulate matter (DPM) and criteria pollutant emissions from in-use off-road diesel-fueled vehicles (CCR Title 13, Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for PM and NOx emissions from owners of fleets of diesel-fueled off-road vehicles and applies to equipment fleets of three specific sizes and the target emission rates are reduced over time (CARB, 2007).

3.2.2.3 Local

Imperial County Air Pollution Control District (ICAPCD) Rules and Regulations

The ICAPCD has primary responsibility for regulating stationary sources of air pollution situated within its jurisdictional boundaries. To this end, the ICAPCD implements air quality programs required by State and federal mandates, enforces rules and regulations based on air pollution laws, and educates businesses and residents about their role in protecting air quality. The ICAPCD is also responsible for managing and permitting existing, new, and modified sources of air emissions within the County. The project would include one small propane or natural gas fired emergency generator that would require permitting, and would include short term stationary sources during construction, such as the temporary concrete batch plant, that would require permitting through the construction contractor.

The applicable rules and regulations include:

- **Rule 201 – Permits Required.** This rule requires an Authority to Construct and Permit to Operate before the construction or operation, respectively, of non-exempt emission sources. The only known stationary source that will require permitting is the proposed small propane or natural gas fired emergency generator that would be located at the project's new substation. It is also likely that the temporary concrete batch plant that will operate during construction will require permits from the ICAPCD. It is assumed that these permits will be the responsibility of the construction contractor.
- **Rule 207 – New and Modified Stationary Source Review.** This rule establishes the stationary source requirements that must be met to obtain a Permit to Operate, including the requirement to comply with best available control technology (BACT), and provide emission offsets for emission increases above the following thresholds:
    - 137 lbs/day for ROC, NOx, SOx, PM10 and CO
- **Rule 401 – Opacity of Emissions.** Rule 401 limits visible emissions from emissions sources. This rule prohibits discharge of any emissions, other than uncombined water vapor, for more than three minutes in any hour.
- **Rule 407 – Nuisance.** This rule restricts emissions that would cause nuisance or injury to people or property (identical to California Health and Safety Code 41700).
- **Rule 800 – General Requirements for Control of Fine Particulate Matter.** Specifies the types of chemical stabilizing agents and dust suppressant materials that can (and cannot) be used to minimize fugitive dust from anthropogenic (man-made) sources. The rule also specifies test methods for determining compliance with visible dust emission (VDE) standards, stabilized surface conditions, soil moisture content, silt content for bulk materials, silt content for unpaved roads and unpaved vehicle/ equipment traffic areas, and threshold friction velocity.

- **Rule 801 – Construction and Earthmoving Activities.** Requires fugitive dust emissions throughout construction activities (from pre-activity to active operations and during periods of inactivity) to comply with the conditions of a stabilized surface area and to not exceed an opacity limit of 20 percent, by means of water application, chemical dust suppressants, or constructing and maintaining wind barriers. A Dust Control Plan is also required and shall be submitted to the Air Pollution Control Officer (APCO) at least 30 days prior to the start of any construction activities on any site that will include 10 acres or more of disturbed surface area for residential developments, and 5 acres or more of disturbed surface area for non-residential development.
- **Rule 802 – Bulk Materials.** Limits the fugitive dust emissions from the outdoor handling, storage and transport of bulk materials. Requires fugitive dust emissions to comply with the conditions of a stabilized unpaved road surface and to not exceed an opacity limit of 20 percent. It specifies that bulk materials be transported using wetting agents, allow appropriate freeboard space in the vehicles, or be covered. It also requires that stored materials be covered or stabilized.
- **Rule 803 – Carry-out and Track-out.** Limits carry-out and track-out during construction, demolition, excavation, extraction, and other earthmoving activities (Rule 801), from bulk materials handling (Rule 802), and from paved and unpaved roads (Rule 805) where carry-out has occurred or may occur. Specifies acceptable (and unacceptable) methods for cleanup of carry-out and track-out.
- **Rule 805 – Paved and Unpaved Roads.** Specifies the width of paved shoulders on paved roads and guidelines for medians. Requires gravel, roadmix, paving, landscaping, watering, and/or the use of chemical dust suppressants on unpaved roadways to prevent exceeding an opacity limit of 20 percent.

Imperial County Air Pollution Control District (ICAPCD) Plans

The ICAPCD has recently adopted a modified Ozone Air Quality Management Plan (AQMP) and a PM10 State Implementation Plan (SIP) to meet attainment for those pollutants that are designated nonattainment (ICAPCD, 2009a; ICAPCD 2009b). These lastest air quality plans have not yet been approved by USEPA. The ICAPCD also adopted Final ICAPCD 2009 Reasonably Available Control Technology (RACT) SIP (ICAPCD, 2009c) to require implementation of VOC and NOx emission controls that are economically and technologically feasible assuring that major sources of ozone precursor emissions are controlled to a reasonably possible extent. These measures are essentially to control emissions from the stationary sources; however, the proposed project does not include any major stationary source. Therefore, the ICAPCD RACT SIP is not applicable to the proposed project.

The applicable plans include:

- **ICAPCD Ozone Air Quality Management Plan.** The current federally approved ozone plan for Imperial County is the 1991 Air Quality Attainment Plan (ICAPCD, 1991). This plan includes recommendations for measures to control stationary source and mobile source Reactive Organic Gases (ROG) and NOx emissions. Measures applicable to the proposed project include additional NOx control for internal combustion engines (ICEs). The proposed project's equipment would comply with the measures listed in the 1991 plan.

  Imperial County failed to meet federal attainment for the 8-hour ozone NAAQS, and was formally reclassified as moderate nonattainment of the federal 8-hour ozone standard in 2008. USEPA issued a final ruling determining that Imperial County moderate 8-hour ozone nonattainment area has attained the 1997 8-hour standard. In the final ruling issued on December 3, 2009, USEPA specifies that this determination does not constitute a redesignation to attainment, but the area still remains as moderate nonattainment for 1997 8-hour ozone standard until the ICAPCD provides an ozone maintenance plan as part of the ozone AQMP. Imperial County formally approved a modified AQMP that includes the required ozone attainment maintenance plan on July 13, 2010. This final ozone plan contains control measures or strategies for the reduction of NOx and ROG emissions from stationary and mobile sources. The only measures potentially applicable to the proposed project would include transportation control measures listed in the County's CEQA Handbook to reduce trips to and from the site; including carpool/vanpool measures and facility design measures to enable the use of public transportation; and reducing trips to and from the site during shift changes and lunch. The Applicant has proposed several transportation control measures including vanpools and the use of low emission electric-hybrid vehicles, as appropriate.

- **ICAPCD Particulate Matter 10 State Implementation Plan (SIP).** The current federally approved PM10 plan for Imperial County is the 1993 State Implementation Plan for PM10 in the Imperial Valley (ICAPCD, 1993). This plan focuses on the reduction of fugitive dust emissions from wind erosion, agricultural operations including open burning, unpaved roads, and construction activities. The recommended mitigation measures for project construction and operation would comply with the recommended PM10 mitigation measures in this plan.

  USEPA reclassified Imperial County from "moderate" to "serious" non-attainment of the 24-hour PM10 NAAQS on August 11, 2004. As part of this re-classification, Imperial County is required to develop a new PM10 Attainment Plan that provides attainment and at least 5 percent annual reduction in PM10 or PM10 precursor emissions until the area reaches attainment status. Imperial County completed a new PM10 Attainment Plan on August 11, 2009, that addresses impacts of PM10 transport from Mexicali, Mexico, impacts of PM10 generated by natural events such as wind and wildfire, and impacts from local sources. This plan states that the PM10 NAAQS has been attained but for international emissions. The plan relies on control measures already adopted as District rules. The core of the PM10 control program is based on the Imperial County Regulation VIII fugitive dust rules, most provisions of which were effective January 2006. Regulation VIII includes Rule 801 Construction and Earthmoving Activities, Rule 802 Bulk Materials, Rule 803 Carry-out and Track-out, Rule 804 Open Areas, Rule 805 Paved and Unpaved Roads, and Rule 806 Conservation Management Practices. USEPA approval of this plan is pending.

3.3 Climate Change

3.3.1 Environmental Setting

3.3.1.1 Climate Change

There is general scientific consensus that climate change is occurring and that human activity contributes in some measure (perhaps substantially) to that change. Man-made emissions of greenhouse gases (GHGs), if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. Increases in global temperature will cause a reduction in the polar ice caps and increase sea level, which will flood low lying areas of the world. Additionally, climate change will shift rainfall patterns that will cause significant impacts to agriculture and fresh water availability worldwide.

3.3.1.2 Greenhouse Gases

Generation of electricity can produce GHGs in addition to the criteria air pollutants that have been traditionally regulated under the federal and state Clean Air Acts. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6), and are so named because of their ability prevent heat from the surface of the earth from escaping to space. The principal climate-change gases resulting from human activity that enter and accumulate in the atmosphere are listed below.

- Carbon Dioxide (CO_2): CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- Methane (CH_4): CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide (N_2O): N_2O is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- Fluorinated Gases: HFCs, PFCs, and SF_6 are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochloro-fluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high Global Warming Potential (GWP) gases.

GHG emissions in the United States come mostly from energy use. Energy-related carbon dioxide emissions, resulting from fossil fuel exploration and use account for approximately three-quarters of the human-generated GHG emissions in the United States, primarily in the form of carbon dioxide emissions from burning fossil fuels. More than half the energy-related emissions come from large stationary sources such as power plants; approximately a third comes from transportation; while industrial processes, agriculture, forestry, other land uses, and waste management make up a majority of the remainder of sources (EPA, 2010). For wind power energy generation facilities the stationary source GHG emissions are much smaller than fossil fuel-fired power plants.

Global warming potential is a relative measure, compared to carbon dioxide, of a compound's residence time in the atmosphere and ability to warm the planet. Mass emissions of GHGs are converted into carbon dioxide equivalent (CO2e) emissions for ease of comparison.

3.3.2 Applicable Regulations, Plans, and Standards

3.3.2.1 Federal

U.S. Environmental Protection Agency (EPA)

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the EPA must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA is required to follow the language of section 202(a) of the Clean Air Act. The Supreme Court decision resulted from a petition for rulemaking under section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations.

On April 17, 2009, the Administrator signed proposed endangerment and cause or contribute findings for GHGs under Section 202(a) of the Clean Air Act. The EPA held a 60-day public comment period, which ended June 23, 2009, and received over 380,000 public comments. These included both written comments as well as testimony at two public hearings in Arlington, Virginia, and Seattle, Washington. The EPA carefully reviewed, considered, and incorporated public comments and has now issued these final Findings.

The EPA found that six GHGs taken in combination endanger both the public health and the public welfare of current and future generations. The EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse as air pollution that endangers public health and welfare under CAA section 202(a). These Findings were based on careful consideration of the full weight of scientific evidence and a thorough review of numerous public comments received on the Proposed Findings published April 24, 2009. These Findings became effective on January 14, 2010 (EPA, 2011a).

Specific GHG Regulations that the EPA has adopted to date are as follows:

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule

This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO2e emissions per year (EPA, 2009). The proposed project would not trigger GHG reporting as required by this regulation.

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule

U.S. Environmental Protection Agency recently mandated to apply Prevention of Significant Deterioration (PSD) requirements to facilities whose stationary source CO2e emissions exceed 75,000 tons per year (EPA, 2011a). The proposed project would not trigger PSD permitting as required by this regulation.

3.3.2.2 State

There are a variety of statewide rules and regulations which have been implemented or are in development in California that mandate the quantification or reduction of GHGs. Under CEQA, an analysis and mitigation of emissions of GHGs and climate change in relation to a proposed project is required where it has been determined that a project will result in a significant addition of GHGs to the atmosphere.

Executive Order S-3-05

Executive Order S-3-05 was established by Governor Arnold Schwarzenegger in June 2006. Executive Order S-3-05 establishes statewide emission reduction targets through the year 2050:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

This Executive Order does not include any specific requirements that pertain to the Proposed Action. However, actions taken by the State to implement these goals may affect the Project, depending on the specific implementation measures that are developed.

California Renewable Portfolio Standard Program

Senate Bill (SB) 1078 established California's Renewable Portfolio Standard (RPS) program in 2002. The RPS program requires electrical corporations and electric service providers to purchase a specified minimum percentage of electricity generated by eligible renewable energy resources. The bill requires the California Energy Commission to certify eligible renewable energy resources, to design and implement an accounting system to verify compliance with the RPS by retail sellers, and to allocate and award supplemental energy payments to cover above-market costs of renewable energy. Under SB 1078, each electrical corporation was required to increase its total procurement of eligible renewable energy resources by at least one percent (1%) per year so that 20 percent of its retail sales were procured from eligible renewable energy resources.

In 2006, SB 107 accelerated the RPS program by establishing a deadline of December 31, 2010, for achieving the goal of having 20 percent of total electricity sold to retail customers in California per year generated from eligible renewable energy resources.

The RPS goal was increased to 33 percent when Governor Schwarzenegger signed Executive Order S-14-08 in November 2008. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. On September 23, 2010, the CARB approved a Renewable Electricity Standard regulation.

The 33 percent RPS goal became law when SB X1-2 was signed into law by Governor Brown in April 2011. SB X1-2, which will be codified into the California Public Resources Code, requires that all electricity retailers in the state meet a 33 percent RPS by the end of 2020, and also requires that they meet a 20 percent RPS by 2013, and a 25 percent RPS by 2016. This law does not specifically apply to the project, but the project would help electricity retailers to meet their RPS obligations required under this law.

Senate Bill 1368

Senate Bill 1368 (SB 1368) was enacted in 2006, and required the California Public Utilities Commission (CPUC) to establish a CO_2 emissions standard for base load generation owned by or under long-term contract with publicly owned utilities. The CPUC established a GHG Emissions Performance Standard (EPS) of 1,100 pounds of CO_2 per megawatt-hour. SB 1368 also requires the posting of notices of public deliberations by publically owned companies on the PUC website and establishes a process to determine compliance with the EPS. The proposed project, as a renewable energy generation facility, is determined by rule to comply with the GHG Emission Performance Standard requirements of SB 1368.

Assembly Bill 32

AB 32, also known as the California Global Warming Solutions Act of 2006, was established in 2006 to mandate the quantification and reduction of GHGs to 1990 levels by 2020. The law establishes periodic targets for reductions, and requires certain facilities to report emissions of GHGs annually. The bill also reserves the ability to reduce emissions targets lower than those proposed in certain sectors which contribute the most to emissions of GHGs, including transportation.

Additionally, the bill requires:

- GHG emission standards to be implemented by 2012; and
- CARB to develop an implementation program and adopt GHG control measures "to achieve the maximum technologically feasible and cost-effective GHG emission reductions from sources or categories of sources." CARB issued a draft Climate Change Scoping Plan in December 2008.

The Assembly Bill 32 Scoping Plan contains the main strategies California will use to reduce the GHG that cause climate change. The scoping plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program. These measures have been introduced through four workshops between November 30, 2007, and April 17, 2008. A draft scoping plan was released for public review and comment on June 26, 2008, followed by more workshops in July and August 2008. The proposed scoping plan was released on October 15, 2008, and approved at the Board hearing on December 12, 2008.

Per CARB's Updated Scoping Plan Fact sheet January 21, 2010 (http://www.arb.ca.gov/cc/facts/scoping_plan_fs.pdf), the following has occurred:

- 12 of 30 ARB regulations approved, including all nine Discrete Early Actions;
- Approved measures provide approximately 70 million metric tons (MMT) CO2e in 2020, 40% of the 2020 goal of reducing 169 MMTCO2e; and
- First year of Mandatory Reporting complete - 97% compliance rate.

The mandatory reporting requirements are effective for electric generating facilities with a nameplate capacity equal or greater than 1 megawatt (MW) capacity if their emissions exceed 2,500 metric tonnes per year. However, the proposed project, as a wind energy generation project, is exempt from the mandatory GHG emission reporting requirements for electricity generating facilities as currently required by the CARB for compliance with the California Global Warming Solutions Act of 2006 (AB 32 Núñez, Statutes of 2006, Chapter 488, Health and Safety Code sections 38500 et seq.).

On December 16, 2010, the structure of the cap and trade regulations were adopted and specific enabling regulations must be adopted by CARB by October 2011 to allow these requirements to become effective January 2012. The approved GHG cap and trade regulations still have several remaining action items and will have several amendments until they will have final state approval by the end of 2011. However, the project would not be subject to this regulation since the project's regulated operating emissions would be well below the regulation's 25,000 MTCO2e annual emissions applicability threshold.

Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulating Gear

This new CARB regulation became effective on June 17, 2011. This regulation requires that owners of SF_6 containing gas insulating gear meet annual leakage rate limits, and requires that they measure, record, and report annual SF_6 emissions.

3.3.2.3 Local

Certain Air Pollution Control Districts (APCDs) have proposed numerical or other GHG significance criteria. The ICAPCD, which has local regulatory authority over the air pollutant emissions, has not established guidance or methods to address GHG emissions and impacts. However, ICAPCD on its CEQA webpage identifies the California Air Pollution Control Officers Association (CAPCOA) report, titled "Quantifying Greenhouse Gas Mitigation Measures" (CAPCOA, 2010) as a guidance document for quantification and project-level mitigation of GHG emissions.

3.4 Cultural Resources

Cultural resources are locations of human activity, occupation, or use. They include expressions of human culture and history in the physical environment, such as archaeological sites, buildings, structures, objects, districts, works of art, architecture, and natural features that were important in past human events. They may consist of physical remains or areas where significant human events occurred, even though evidence of the events no longer remains. Cultural resources also include places that are considered to be of traditional cultural or religious importance to social or cultural groups.

Prehistoric resources are recognized as those attributed to Native American groups who occupied the region before contact with Europeans; historic resources are those associated primarily with Europeans and Americans but may also include resources of Native Americans following contact. These resources are more than 50 years old but date to after the time of contact between Native Americans and Europeans. Although a few explorers traversed the region earlier, in extreme southern California, the time of contact between Native Americans and Europeans is generally identified as the 1770s.

Ethnographic resources represent the heritage of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. They may include traditional resource-collecting areas, ceremonial sites, value-imbued landscape features, cemeteries, shrines, or ethnic neighborhoods and structures. Sites, artifacts or other ethnographic resources of particular significance to modern Native Americans are often kept confidential by those groups in order to protect such places from disturbance, looting, overuse, or other degradation. Ceremonial sites or objects, burials and associated funerary objects, or places referred to in traditional oral histories are often considered sacred to these groups.

Sacred sites and other places of traditional cultural importance, sometimes called traditional cultural properties (TCPs), are associated with the cultural practices or beliefs of a living community. TCPs are rooted in the community's history and are important in maintaining cultural identity. Such places may be eligible for the National Register of Historic Places (NRHP). Examples of TCPs for Native American communities may include natural landscape features, trail systems, places used for ceremonies and worship, places where plants are gathered that are used in traditional medicines and ceremonies, places where artisan materials are found, and places and features of traditional subsistence systems, such as hunting areas. Given the nature of these resources, they may not necessarily be identified during conventional archeological, historical, or architectural surveys. As a result, the existence and/or significance of such locations often requires input from the tribes that view them is significant. Guidelines for evaluating and documenting traditional cultural properties are provided in the National Park Services' *National Register Bulletin 38* (Parker and King, 1998).

Several cultural resource studies have been completed in support of this EIS. These include a Class II and Class III Inventory Research Design and Work Plan (Tierra, 2010), an archaeological survey (Tierra, 2012a); and a built environment study (Moomjian, 2012). In addition, the BLM has initiated consultation with Indian tribes to identify traditional resources that may otherwise be left unidentified by these studies. Chapter 5 provides a discussion of the BLM's tribal consultation process.

Area of Potential Effects

For purposes of complying with Section 106, the APE for this project generally consists of the following:

1. For archaeological resources, the horizontal APE is defined as the entire 12,436-acre area included within the right-of-way grant. The vertical APE is defined by the depth of ground disturbance associated with the construction of the project and the height of the turbines. For the purpose of the archaeological study, the APE was divided into the direct and indirect impact APEs:
    - The direct impact APE includes all areas where ground-disturbing activities may take place, including turbine locations, transmission corridors, staging areas, access roads, and other supporting infrastructure and improvements, along with a 500-foot buffer surrounding all facilities.
    - The indirect impact APE is defined as those areas within the ROW grant that might be subject to indirect impacts and all portions of the ROW grant that will not be subject to direct impacts.
2. For ethnographic resources, the APE takes into account traditional use areas and traditional cultural properties (TCP) which may be far-ranging, including views that contribute to the significance of the property. These resources are often identified in consultation with Native Americans and other ethnic groups, and issues that are raised by these groups may define the area of analysis. Representatives of some of the Tribes have informed the BLM of a TCP which encompasses the project area and the surrounding region. However, the information provided to date about the characteristics of the TCP only allows the BLM to assume the eligibility of certain portions of it for the National Register of Historic Places (36 CFR 800.4(c)(1)) pursuant to 36 CFR § 800.4. Accordingly, the APE for the TCP is the portion of it that falls within the project footprint and the viewsheds toward Mount Signal, Sugarloaf and Coyote Mountains.
3. For built-environment resources, the APEs are the project area plus a 1-mile buffer. The APE for built-environment resources also includes the community of Nomirage and the Desert View Tower, to account for possible visual impacts.

For the purpose of the present discussion and analysis, the project area of analysis for NEPA and CEQA is equivalent to the APE. The current APE plus a 10-mile buffer is illustrated on Figure 3.4-1 (Area of Potential Effects).

3.4.1 Environmental Setting

Understanding the historic and environmental context in which cultural resources exist is imperative to evaluating impacts of projects on those resources. Descriptions provided in this section are based on information from the *Archaeological Survey Report for the Ocotillo Express Wind Energy Project, Imperial County, California* (Tierra, 2012a).

The project area is located in the westernmost portion of the Colorado Desert in Imperial County. It lies on both sides of Interstate 8 and Highway 98, and surrounds much of the small community of Ocotillo. The project area is relatively flat but slopes down slightly towards the southeast. Elevation of the project area varies from about 300 to 1,400 feet above mean sea level (amsl). West of the project area are the Jacumba Mountains and the In-Ko-Pah Mountains. To the north are the Coyote Mountains and the Carrizo Badlands. The project area lies in what is known as the Yuha Desert, or West Mesa. This is the southwestern portion of the Colorado Desert (i.e., the desert surrounding the lower Colorado River). The Colorado Desert is, in turn, the northwestern portion of the much larger Sonoran Desert which, as the name suggests, is centered in the Mexican state of Sonora.

During the late Cretaceous (> 100 million years ago) a granitic and gabbroic batholith was being formed under and west of the project area. This batholith was uplifted over time and now forms the granitic rocks and outcrops of the Peninsular Range. This range forms the backbone of the Baja California peninsula and coastal southern California. In the early Pliocene, at about 7 million years ago, Baja California and that portion of Alta California, west of the San Andreas Fault System, began moving northwest away from mainland Mexico. This northwest movement along this massive fault zone, known as the East Pacific Rise, created the Sea of Cortez or the Gulf of California. The northern portion of the East Pacific Rise is known as the San Andreas Fault System (Alles, 2004; Singer, 2011).

The Colorado River began carving out the Grand Canyon and depositing prodigious amounts of silt and sand in the Salton Sink as early as 5½ million years ago (Middle Pliocene) (Alles, 2004). At about 2 million years ago (Early Pleistocene), the Sea of Cortez extended north to about where the community of Indio is today. The Colorado River delta and the Salton Trough continued filling with sediments from the Colorado River. These sediments are thought to be as much as 25,000 to 30,000 ft deep in some places (Singer, 2011). By perhaps one million years ago (Mid-Pleistocene), the river had deposited a sufficient amount of sand and silt across the Salton Trough south of the International Border to form a dam that separated the northern Salton Trough from the Gulf of California. The delta area, and what is now Imperial County, became dry land. The Colorado River continued to transport huge amounts of silt. Occasionally, the river shifted course from its silt-elevated river bed near its mouth at the Gulf of California and flowed west and north into the Salton Trough basin periodically throughout the Pleistocene and Holocene periods. This cyclic shift in the course of the river formed freshwater Lake Cahuilla (Alles, 2004; Singer, 2011; Waters, 1983; Wilke, 1978). A significant source of freshwater and lacustrine biotic resources during several periods in prehistory, Lake Cahuilla's shoreline, when it existed, was about 10 miles east of Ocotillo. Lake Cahuilla filled and dried up a number of times over the last 2,000 years. Inundating the entire lower portion of the Coachella Valley, Lake Cahuilla was approximately 115 miles long, about 34 miles wide, and nearly 320 ft deep; during these periods, the elevation of the lake was 40 ft amsl.

Today, the project area consists of a relatively flat basin surrounded by rugged hills and mountains. For the most part, the project area is primarily an alluvial deposit deriving from the Jacumba Mountains to the west, which is part of the granitic Peninsular Range and the Coyote Mountains to the north. These alluvial areas, generally trending to the north-northeast, consist primarily of granitic gravels, sands, and silts. Also on these alluvial fans are clasts of quartz, basalt, and metavolcanic rocks. These rock types were favored by the prehistoric Indians for use as tool stone. The vast majority of archaeological sites in the project area consist of lithic procurement and processing sites on alluvial fans and terraces. Extensive patches of poorly sorted, unpatinated desert pavement also exist here. Covered by a thin layer of gravel and pebbles, these desert pavements form a sort of armor over the silty substrate that protects the land beneath it from wind and water erosion. They form geologically stable areas in which vegetation is minimal and archaeological evidence remains well-preserved. They also appear to have been attractive camping places for prehistoric populations (Rogers, 1966). The alluvium and desert pavements are dissected by seasonally active arroyos, some of which are deeply incised. In other areas, windblown sands gather against obstacles (e.g., creosote bushes), forming large expanses of active dunes.

In addition to Lake Cahuilla, mentioned above, other freshwater sources in both prehistoric and historic times in the project vicinity may have included:

- Coyote Wells, which were Indian-dug wells, approximately two miles east of the town of Ocotillo.
- Yuha Wells, which were Indian-dug wells, nearly six miles southeast of the town of Ocotillo.
- At least four springs at the base of the Jacumba Mountains, about 8-10 miles west of the Project area.
- New River, approximately 18 miles east of Ocotillo. There was a large Kamia planting area and rancheria along New River called Xachupai in the general vicinity of Seeley and extending south to perhaps below the Mexican Border. New River was a slough of the Colorado River and it was often dry.
- Springs in the Jacumba Valley about 14 miles west of Ocotillo.
- Springs and wells northwest of the Project area along the Southern Emigrant Trail (currently County Route S2 [CR-S2]) at the foot of the Tierra Blanca Mountains. For example, in Carrizo Valley some 14 miles northwest of Ocotillo.
- In addition, numerous large washes draining to the east and south from the Jacumba Mountains to the west and the Coyote Mountains to the north, respectively. Although these washes were only occasional sources of water, they provided important access to and from the upland regions adjacent to the valley areas.

Climate

Prior to the mid-1900s, the climate of the greater Salton Sea Basin was characterized by low relative humidity (10–40%), very low rainfall, high summer temperatures of up to 52° C (125° F), and mild winters. Hard freezes were infrequent (Turner and Brown, 1994). Since the mid-1900s, the relative humidity in the region has risen gradually as more and more agricultural tracts have been developed in the greater Ocotillo area. Precipitation derives mainly from the subtropical monsoons originating in the gulfs of California and Mexico during the summer months (Hall, 1993:7), resulting in violent rainstorms within the upland areas which, in turn, create vigorous runoff resulting in the occurrence of alluvial fans, braided drainages, intermittent streams, and wetland features on the valley floors. Pacific maritime air masses during the winter months account for the remainder of the precipitation. Within the desert areas, the average annual rainfall is as sparse as 6 cm (2.5 in.) per year; however, at the higher elevations the average annual precipitation may range from 10 inches to as much as 30 inches per year. During the spring and late fall, strong winds prevail, occasionally resulting in violent dust storms which move sand and other sediments over the project area.

Flora and Fauna

As the climate of the region is largely determined by topographic features, climate, in turn, largely dictates the character of the biotic environment exploited by native populations. Bean and Saubel (1972) describe three primary life zones that were exploited by the native inhabitants of the Salton Sea Basin: Lower Sonoran, Upper Sonoran, and Transitional. Characteristic plants and animals found in these life zones are listed below.

The Lower Sonoran life zone, which extends from the desert floor to approximately 3,500 ft amsl, is characterized by low rainfall (about 4 inches per year), fine-textured alluvial to sandy soils, and xerophytic plant communities. Creosote bush (*Larrea tridentata*) and bur-sage (*Ambrosia dumosa*) are the dominant plants, replaced by saltbush (*Atriplex* spp.) in areas of more saline or alkaline soils. Adjacent to washes and ephemeral streams, desert willow (*Chilopsis linearis*), smoke tree (*Dalea spinosa*), palo verde (*Cercidium floridum*), desert ironwood (*Olneya tesota*), and catclaw (*Acacia greggii*) are found; mesquite (*Prosopis juliflora*), screwbean (*Prosopis pubescens*), and arrowweed (*Pluchea sericea*) occur adjacent to more permanent water sources and in areas with a very shallow groundwater table such as are found in the more dune-like areas of the project area. Frost-sensitive plants such as ocotillo (*Fouquieria splendens*), barrel cactus (*Ferocactus splendens*), cholla (*Opuntia* spp.), century plant/agave (*Agave deserti*), creosote bush, and Mojave yucca (*Yucca schidigera*) grow on the well-drained slopes adjacent to the desert floor. Approximately 40 percent of the plant species exploited by the Cahuilla are found in this biotic region; the fruits of the fan palm and the flowers and pods of mesquite and screwbean were highly favored (Bean and Saubel, 1972:13). Economically important animals found in this life zone include kangaroo rats (*Dipodomys*), ground squirrels (*Citellus*), wood rats (*Neotoma*), desert cottontail (*Sylvilagus audubonii*), and black-tailed jackrabbit (*Lepus californicus*); desert bighorn sheep (*Ovis canadensis*) is found at the upper reaches of this life zone (Bean and Saubel, 1972; Minckley and Brown, 1994; Turner and Brown, 1994). Sonoran pronghorn once roamed the nearby desert, but they are locally extinct. McDonald (1992) found trace proteins of deer, pronghorn, and bighorn sheep in her archaeological excavation at Indian Hill rock shelter a few miles northwest of the project area, demonstrating their importance to prehistoric Indian populations.

Specifically, the project area lies within the Lower Sonoran creosote bush scrub. Sonoran creosote bush scrub is a vegetation community composed of widely spaced shrubs ranging between 0.5 m and 3 m in height which grow during the rainy season, typically from December through March. Shrubs are dormant during the summer and may remain dormant for long periods of time. Most desert plants flower in the late rainy season, February through March. By June, the desert is dry and hot. As noted above, the area occasionally gets Mexican monsoon thunderstorms in the summer. These can provide prodigious amounts of precipitation in a very short time, resulting in flash floods and arroyo cutting. Plant species characteristic of the project area include creosote bush, bursage, brittle bush (*Encelia farimosa*), agave, Indian rice grass (*Oryzopis hymenoides*), indigo bush (*Psorothamnus schottii*), ocotillo, barrel cactus, pencil, chain, and teddy bear cholla, and various annuals. In the northwestern portion of the Project area, there is a dense stand of agave which was heavily utilized by prehistoric populations as food (Balls, 1962; Cornett, 2002; Schultz, Underwood, and Collett, 2007). According to E.W. Gifford, "Baked mescal [agave] root, an important food in the hilly parts of southern California, was not prepared by the Kamia. The Diegueno, however, cooked the plant in the earth oven. It was traded to the Kamia in the form of dried fibrous cakes (Gifford, 1931:23).

The Upper Sonoran life zone, extending from 3,500–5,000 ft, is characterized by warm summers and cold winters with rainfall averaging 38 cm (15 in.) annually. Pinyon pine (*Pinus monophylla, P. quadrofolia*) and California juniper (*Juniperus californica*) are the dominant plant species of this zone. Other species include red shank or ribbonwood (*Adenostoma sparsifolium*), chamise (*A. fasciculatum*), ironwood, antelope bush (Purshia glandulosa), scrub oak (*Quercus dumosa*), ocotillo, manzanita (*Arctostaphylos* spp.), buckthorn (*Rhamnus* spp.), and barrel cactus. Approximately 45 percent of the food plant species used by the Native inhabitants of the region are found in this life zone, with pinyon pine nuts, manzanita, and elderberry highly favored. Important animal resources found in this life zone include wood rat, kangaroo rat, black-tailed jackrabbit, ground squirrel, desert bighorn sheep, and mule deer (*Odocoileus hemionus*) (Bean and Saubel, 1972; see also reference to McDonald's work at Indian Hill rock shelter above).

The Transitional life zone, ranging from 5,000–7,000 ft, is characterized by relatively cool summers and cold winters with an annual precipitation of 50–76 cm (20–30 in.). This zone is composed primarily of coniferous forests containing scattered oak (*Quercus* spp.) groves; willows (*Salix* spp.) and cottonwood (*Populus* spp.) occur along stream courses. Common species include ponderosa pine (*Pinus ponderosa*), Jeffery pine (*P. jeffreyi*), incense cedar (*Calocedrus decurrens*), bigcone spruce (Pseudotsuga macrocarpa), manzanita, mountain mahogany (*Cercocarpus* spp.), and elderberry (*Sambucus* spp.). Probably the most important plant food species from this life zone are the black oak (*Q. kelloggii*), manzanita, and elderberry. Approximately 15 percent of the plants utilized by the Native inhabitants of the region are found in this life zone. Important animal resources found in this life zone include mule deer and ground squirrel (Bean and Saubel, 1972).

Fauna in the region includes Peninsular big horn sheep, coyotes, fox, skunk, bobcats, rabbits, and various rodent, reptile, and bird species. Survey crews often observed jackrabbits, turkey vultures, dove, and quail. Coyote and golden eagle were occasionally seen.

3.4.1.1 Cultural Setting

In general, the cultural sequence for the Colorado Desert, a portion of the CDCA, is most often viewed in terms of three or more time periods based on the evolutionary stages proposed by Willey and Phillips (1958). Among contemporary archaeologists and heritage resource managers, the Paleoindian and Archaic evolutionary stages of Willey and Phillips (1958) have evolved into time periods and, in southern California, their Formative stage became the Late Prehistoric time period. Within the time periods, are various archaeological complexes that occur on a regional basis.

Late Pleistocene

Several researchers posit a Pre-Projectile Point Period that occurred in the late Pleistocene prior to the much better documented Clovis, San Dieguito, Lake Mojave complexes (e.g., Begole, 1974; Childers, 1980; Hayden, 1976). Archaeological material from the Greater Southwest dating to this posited Pre-Projectile Point Period is often called the Malpais Complex. Malpais is a term that was adapted from the early work of Malcolm Rogers, who used it to refer to what is now the first portion of the San Dieguito Lake Mojave Complex. The term was resurrected by Hayden (1976) to refer to a tool assemblage including choppers, scrapers, and other crude, core-based tools typically found on old desert pavements in the Sonoran Desert and in the Sierra Pinacate. These materials generally are heavily weathered, very darkly patinated and found deeply embedded in desert pavements. Lacking subsurface deposits, Hayden depended to a large degree upon the amount of patination and relative dates of geological formations to obtain relative dates. He argued that most of the Malpais Complex dates to some time prior to an altithermal that occurred about 20,000 years ago. At a shell scatter on a sand dune near Adair Bay on the Gulf of California, he was able to obtain two subsurface dates on shell that were greater than 37,000 years before present (B.P.), the limit of radiocarbon dating. He also obtained a surface date there of approximately 33,950 B.P. (corrected) (Hayden, 1976). These very early dates are rather troubling to traditional "Clovis First" archaeologists and many are skeptical of the existence of this period (e.g., Schaefer 1994). Obtaining corroborating radiocarbon dates to support or refute this very early age for the Malpais continues to prove elusive.

Terminal Pleistocene-Very Early Holocene

The earliest well-documented sites in the southern Alta California desert region belong to the San Dieguito Complex, which is thought to date from approximately 11,000 to 9,300 B.P. to perhaps as late as 7,500 B.P. (Justice, 2002; Warren et al., 1998). Beginning in 1924, Malcolm Rogers, of the San Diego Museum of Man, conducted surveys in the Colorado Desert during which he noted what became known as the San Dieguito Complex. Eventually, Rogers documented San Dieguito materials in the Mojave Desert, in Arizona, and as far south as San Quintin, in Baja California. The Project area is within Roger's Central Aspect for the San Dieguito (Rogers, 1966).

Closely related to the San Dieguito are materials that have been identified in the Mojave Desert and in the Great Basin called the Lake Mojave Complex (Warren and Crabtree, 1986; Warren et al., 1998). No San Dieguito radiocarbon dates have been published for the Colorado Desert, although many surface sites have been reported (Schaefer, 1994).

Elsewhere, materials associated with human bone excavated on Santa Rosa Island were dated to 11,500 years B.P. (Johnson et al., 1999). Materials at Daisy Cave on San Miguel Island were also radiocarbon dated from approximately 11,600 to 11,000 B.P. (Erlandson, 2007). Radiocarbon dated cultural deposits going back to approximately 15,000 B.P. have just been reported from the Debra L. Friedkin Site in Texas by Michael Waters (Ehrenberg, 2011). The earliest well-documented dates for the West Coast come from the Paisley Caves in eastern Oregon (Jenkins, 2007). Dennis Jenkins obtained radiocarbon dates on DNA-documented human coprolites extending back to 14,280 B.P. He also obtained obsidian hydration data that suggest occupations at the Paisley Caves may go back to between 17,000 and 18,000 B.P. While these scholars have substantiated the notion of terminal Pleistocene occupations in the American West, the relationships among these early sites and the San Dieguito Lake Mojave complex in the Colorado Desert are not yet understood.

The San Dieguito assemblage is typically dominated by finely flaked scrapers, planes, choppers and leaf-shaped projectile points made of slate-green felsite of the Santiago Peak Formation or fine-grained basalt. Evidence of seed grinding technology (manos and metates) is scarce or absent. Desert assemblages often contain Lake Mojave and Silver Lake projectile points that are rare along the coast. These points appear in the California deserts from about 11,000 to about 7,000 B.P. (Justice, 2002:91; Warren and Crabtree, 1986:184). San Dieguito sites in the deserts are typically found around dry Pleistocene playas and above ancient stream channels, not modern water sources. Rogers and many others have found numerous trails and cleared circles that they attribute to the San Dieguito in the Colorado Desert. The cleared circles are typically somewhat circular, but ovals and rectangles are also noted. These are also known as sleeping circles. Despite the problem with geometry, the terms cleared circles and sleeping circles are very well established in the archaeological literature. They are commonly interpreted as house or windbreak remains or just a smooth place to sleep. The desert site locations and assemblages suggest a subsistence emphasis on lacustrine resources, but the coastal San Dieguito sites seem to reflect a more generalized hunting and gathering economy with a special emphasis on marine resources, especially shellfish (Erlandson and Colten, 1991; Warren et al., 1998).

Mid Holocene

During the early and mid-Holocene, a generalized hunting and gathering economy, based to a large degree on collecting and grinding grasses and other hard seeds, appeared in the California deserts and along the coast. Beginning at approximately 8,500 years ago in southern Alta California, the assemblage is dominated by portable basin metates, manos, and crudely-fashioned core-based scrapers, choppers, and hammerstones. In the California deserts, Pinto series projectile points appear at about 8,000 B.P. and continue to about 4,000 B.P. (Justice, 2002:135). Gypsum series points begin to appear in desert sites at approximately 4,000 B.P. with the Elko series appearing shortly thereafter (Justice, 2002: 294, 304). This assemblage suggests the mid-Holocene economy was more diversified and focused on gathering hard seeds and grasses, and hunting small and big game. Near the Project area, McDonald (1992) found mid-Holocene cultural deposits in her excavation of Indian Hill rock shelter. Located in the Jacumba Mountains northwest of the current project area, this is the only published excavation of a mid-Holocene archaeological site in the Colorado Desert. McDonald posits that the site was first occupied at about 5,000 B.P. She recovered 21 Elko dart points, one Gypsum Cave point, and four dart points that she was unable to type. She suggests that Indian Hill rock shelter functioned as a hunting camp for the mid-Holocene occupants (McDonald 1992).

Late Holocene

Around 2,000 B.P., patterns begin to emerge that suggest cultural links to the peoples found in the Colorado Desert at the time of the Spanish explorers (e.g., Alarcón and Diaz, in 1540 A.D.). This Late Holocene period is often referred to as the Late Prehistoric. The archaeological complex at this time in the Colorado Desert is referred to as the Yuman or Patayan Complex. It is recognized archaeologically by the presence of smaller projectile points, signaling the advent of the bow and arrow, the replacement of flexed inhumations with cremations, the introduction of ceramics, and an emphasis on plant food collection and processing, especially acorns and mesquite (Kroeber, 1925; Schaefer, 1994; Schaefer and Laylander, 2007). Semi-sedentary rancherias were established along the Colorado River and around springs. These rancherias were not compact villages, but were loose collections of residences and agricultural plots. Surrounding desert and mountain areas were seasonally occupied to exploit mesquite, acorns, and pinyon nuts. Mortars for mesquite and acorn processing become common for the first time in the area and bedrock milling features (slicks, basins, and mortars) first appear (Schaefer and Laylander, 2007).

The most numerous archaeological resources in the Imperial Valley date to the Late Holocene. Most sites are small processing loci, associated with the grinding of plant resources. Larger habitation sites were less common, but displayed a wider range of activities and longer periods of occupation (Jefferson, 1974; Schaefer and Laylander, 2007). The typical Late Prehistoric assemblage includes Desert Side-Notched series and Cottonwood Triangular arrow points and Lower Colorado Buffware and Tizon Brownware ceramics. In the vicinity of the Project area, Salton Brownware ceramics are also found (Schaefer and Laylander, 2007). Lithic artifacts are typically made from chert, volcanics, metavolcanics, or quartz materials (Jefferson, 1974). The economy along the Colorado River and its sloughs, the Alamo River and New River, was based on mesquite collecting and flood plain horticulture. Corn, beans, and squash were the primary crops, but mesquite was the mainstay of the Kamia diet, even in years of good horticultural production (Castetter and Bell, 1951; Gifford, 1931).

During the Late Holocene, there were four or more events when Lake Cahuilla filled the Salton Sink up to the 40-foot elevation. As noted previously, Lake Cahuilla occurred periodically when the Colorado River filled up its river bed with silt in the area south of Pilot Knob. At these times the river changed course out of its silt-elevated channel and, instead of flowing into the Upper Gulf of California, flowed west down the Alamo River and New River, then north into the Salton Sink (Schaefer 1994; Singer 2011).

When Lake Cahuilla was full or filling, the entire flow of the Colorado River was probably diverted and the area from Pilot Knob south to the Gulf was dry. Since Alarcón estimated (or overestimated) about 20,000 people living south of Pilot Knob in 1540, it was presumably densely populated during the Late Prehistoric as well (Forbes, 1965). These people had to migrate when the Colorado River flowed into Lake Cahuilla, and they may have been the people who left the huge number of archaeological sites around the southern shore of Lake Cahuilla (Schaefer and Laylander, 2007; Underwood, 2007, 2008). The southwestern shoreline of Lake Cahuilla lies approximately 12 miles east of Ocotillo. Although the shoreline of this huge freshwater lake was outside the project area, the lake would have had a profound influence on prehistoric Indians within the project area.

Ethnohistoric Period (Post 1540 C.E.)

According to early ethnographers (e.g., Gifford, 1931; Kroeber, 1925), the project area was in the traditional territory of the Kamia or Desert Kumeyaay. Their neighbors to the north are the Cahuilla whose territory extended to meet the Kamia at the San Felipe or Scissors Crossing area (where CR-S2 meets State Route 78). To the east about 80 miles from the project area are the Quechan who live along the Colorado River just west of Yuma (Forde, 1931). The traditional territory of the Cocopah, their neighbors to the southeast, lies approximately 80 miles from Ocotillo at the head of the Gulf of California (Gifford, 1931; Kelly, 1977); to the west are the Kumeyaay proper.

It is important to understand that the Kamia did not occupy all of their traditional territory at one time. They tended to occupy a few farming rancherias or camping places within their territory at any given time, based largely on the availability of water. The Kamia were quite friendly with the Quechan, who lived in vicinity of Yuma, and some bands occasionally lived with them on the Colorado. They also were very closely related to the Kumeyaay and shared clans or lineages with them (Gifford, 1931). The Kumeyaay rancheria of *Jacum*, near the town of Jacumba today, was perhaps the easternmost Kumeyaay settlement. Jacumba is about 19 miles southwest of Ocotillo. Ethnographic sources indicate that the cold season was a favorite time for the Kumeyaay who lived in the mountains bordering the desert to visit the Kamia (Gifford, 1931:17). Kroeber noted that Diegueno (Kumeyaay) clans spent winter “in mixed groups in the eastern foothills, at the desert’s edge” (Kroeber, 1925”720). Also, the Indians who lived in the Mount Laguna area wintered in the desert around Vallecitos and Agua Caliente, and Mason Valley (Cline, 1979).

The Kamia lived primarily along the Alamo River and New River and along other sloughs of the Colorado River in what is now Mexico as far south as Volcano Lake. The nearest documented Kamia rancheria was *Xachupai*. This was a loose collection of farmsteads scattered along the north-south trending New River for several miles. *Xachupai* extended both north and south of where I-8 intersects the river today (Gifford, 1931; Forbes, 1965; Kroeber, 1925; Shipek, 1982). This is about 18 miles east of Ocotillo. The distribution of ethnographically attested Kamia and Kumeyaay rancherias suggests that the people who occasionally camped and gathered agave and tool stone in the project area may have been Mountain Kumeyaay who moved into this area during the winter; Kamia who lived primarily at *Xachupai* along New River; or both Kumeyaay and Kamia.

Group size and the degree of social interaction therefore varied over the course of an annual cycle. The basic unit of production was the family, which was capable of great self-sufficiency, but Kamia families moved in and out of extended family camps or rancherias opportunistically. Thus, whereas single families occasionally exploited low-density, dispersed resources on their own, camps or rancherias of several families formed at other times. This occurred particularly when key resources were available, such as water in the sloughs that would allow for planting (Gifford, 1931).

The Kamia, who traced their descent patrilineally (i.e., through one's father) were exogamous, meaning that one had to marry outside one's own lineage. They also practiced patrilocal residence, that is, a married woman lived with her husband's father's relatives. Descent groups apparently "owned" land and certain other resources. Kroeber observed of the Kumeyaay that "it would appear that each 'clan' owned a tract and that each locality was inhabited by members of one clan, plus their introduced wives" (1925:720). Regarding other resources, Spier (1923:307) observed that some Kumeyaay "gens" (i.e., clans) owned patches of certain trees and "each gens owned one or more eyries from which eaglets were taken for use in the mourning ceremony." Apparently, however, resource ownership did not extend to the oak groves in the mountains, which probably reflects the extreme importance placed upon this resource for the adaptation and survival of the entire society. Gifford (1931: 50-51) reported that the Kamia had no clan chiefs, but had a tribal chief like the Quechan; however this form of leadership may have been introduced after European contact.

The Kamia economy was divided between the corn, beans, and squash horticulture typical of the Quechan, Cocopah, and other tribes along the Colorado River and the hunting and gathering of their Kumeyaay and Cahuilla neighbors. Important wild plant foods exploited from the Kamia's diverse habitat included mesquite and screw beans, piñon nuts, and fruits of various cacti and grass seeds. Important but less utilized plants included various wild fruits and berries, tubers, roots, and greens. Women were instrumental in the collection and preparation of vegetal foods. In years when there was an ample Colorado River spring flood, the Kamia planted their crops along the New River and the Alamo River and other sloughs of the Colorado south of the Mexican Border. Like the Quechan, mesquite was the mainstay of the Kamia diet, even in years of good horticultural production (Gifford, 1931).

Kamia culture and society remained stable during the period of missionization on the coast. It was not until the American period that the Kamia were heavily displaced. The introduction of European diseases greatly reduced the native population of southern California and further disrupted the way of life for the native inhabitants. Some people who identify themselves as Kamia, or partly Kamia, live today among the Quechan and Kumeyaay (Gifford, 1931; Kelly, 1977; Preston Arrowweed, personal communication to J. Underwood, 2011). While it is clear from the ethnographic record that the Kamia traded with the Kumeyaay, Quechan, and Cocopah (see, for example, Davis, 1963:24), no ethnographic evidence has been found that tribes other than the closely-related Kumeyaay traditionally shared the project area with the Kamia (see Baksh, 1997:5-9 for a compilation of traditional territory maps for the region).

Little specific recent information is available on the Kamia: "Disease, warfare, drought, white settlement, and assimilation into Anglo Imperial Valley or Indian Reservations brought an end to the Kamia as a cultural entity by the 20th Century. The last recognized Kamia chief died in 1905" (.Brian F. Mooney Associates, 1993: III-142, III-143). In San Diego County there are twelve Federally recognized Kumeyaay tribes in San Diego County: Barona Band of Mission Indians, Campo Band of Mission Indians, Ewiiaapaayp Band of Kumeyaay Indians, Inaja-Cosmit Band of Indians, Jamul Indian Village, La Posta Band of Kumeyaay Indians, Manzanita Band of Kumeyaay Indians, Mesa Grande Band of Mission Indians, San Pasqual Band of Diegueno Indians, Santa Ysabel Band of Diegueno Indians, Sycuan Band of Kumeyaay Indians, Viejas Band of Kumeyaay Indians, and one non-federally recognized tribe, the Kwaaymii Laguna Band of Indians. These tribes have historically been recognized as being affiliated with much of Imperial County west of the Algodones Sand Hills (in addition to much of San Diego County), which includes the project area. In recent years, the Fort Yuma Quechan in eastern Imperial County and Yuma, Arizona, and the Cocopah Indian Tribe in Somerton, Arizona, have increasingly asserted cultural affiliation with the western portion of Imperial County. The Torres-Martinez Desert Cahuilla Indians are culturally affiliated with the far northwestern portion of Imperial County and southern Riverside County. Because of interests expressed by Kumeyaay tribes, the Quechan, and the Cocopah in the project area, all of these tribes have been invited to consult on the proposed project on cultural resource issues.

Historic Period

The first Spanish exploration of what is now Imperial County occurred in 1540, when Hernando de Alarcón ascended the Colorado River probably up to where Yuma and Winterhaven are today. Juan Cabrillo was the first Spanish explorer to visit coastal southern Alta California, when he anchored in what would become known as San Diego Bay in 1542. Both explorers claimed Alta California for the king of Spain, thus initiating the Spanish Period in Alta California. Spanish explorers visited what was to become Imperial Valley on a sporadic basis from that time on. Travel in the immediate vicinity of the project area began when Juan Bautista de Anza of the Spanish Army and Francisco Garcés of the Franciscan Order established what became known as the Anza Trail in 1774 during the first Anza Expedition. Their guide was Sebastian Taraval, an Indian from Baja California who also served as translator. Captain Juan Bautista de Anza was the commanding officer of the presidio at Tubac, south of TucsonThe Anza trail passed east of the project area. It went northwesterly from Barranca Seca in Baja California south of where Mexicali is today to Yuha Wells. The exact location of the Anza Trail in this area has not been clearly established; however, based on historic journals and maps, the National Park Service has inferred that the probable historic trail corridor is located approximately 8 miles to the east of the project area (National Park Service, 2011).

The Yuha Wells were used by Anza, who called them *Santa Rosa de las Lajas* (Flat Rocks) (Bolton 1930). They are on the southwest side of Dunaway Road about 12 miles east of Ocotillo. Anza's observations establish the fact that prehistoric wells were dug by the Kamia, at least in the Yuha Desert. This suggests that other wells may also have been dug in washes to support prehistoric Indian camps in the Project area

In 1770, Pedro Fages was appointed military governor of California Nueva, which later became known as Alta California. In 1772, he discovered an Indian trail in the mountains of eastern San Diego County near Cuyamaca State Park. It passed down Oriflamme Canyon and then connected with a north trending trail. This trail went north through the Warner's Springs area. Fages continued on to Mission San Gabriel de Arcangel, founded in 1771 in what is now San Gabriel Valley. Later, a trail was discovered that split from the Anza Trail in the vicinity of Yuha Wells and passed north through Vallecito and Agua Caliente.

This linked up with the Fages Trail at the foot of Oriflamme Canyon, southeast of where the town of Julian is today. This combined Fages and Anza Trail became the principal route linking Sonora and Alta California in the late 18th and early 19th centuries. This route, followed today by CR-S2, became known as the Sonora Trail (Guerrero, 2006).

In addition to the well-known Franciscan missions along the coast of Alta California, missions were also founded at Concepción, in the vicinity of present-day Yuma and San Pablo near Pilot Knob in 1780. A number of Spanish settlers accompanied the Franciscans and a small number of Spanish Army personnel; however, no presidio was established. Friction between the Spanish and the Quechan rapidly developed. The missions and settlements were destroyed in the successful Quechan Revolt of 1781. Padre Garcés and some 50 Spanish settlers were killed in that revolt. The dead included Fernando Rivera y Moncada, who led the first overland party of the Portolá Expedition to reach San Diego in 1769 and had been the military governor of Alta California in 1777 (Forbes 1965:185-202).

The Mexican people chafed under Spanish rule in the late 1700s and early 1800s. After a long struggle, the Spanish were expelled from Mexico in 1821. The Mexican Republic retained many Spanish institutions and laws, but they were very concerned about the abuses of the Catholic Church. Several reforms were passed, including the secularization of the mission system in 1834. Large tracts of former church land were granted to individuals and families and the Alta California rancho system flourished. Cattle ranching dominated the economy. The hide and tallow trade with Yankee ships increased during the 1830s. The Pueblo of Los Angeles, established in 1781, began to grow rapidly during this period and Native American influence and control greatly declined (Starr, 2007).

The Mexican Republic had encouraged Americans to settle in Tejas in the 1820s and by the 1830s, the Americans greatly outnumbered the Mexicans. Friction developed between the two cultures and in 1835, Texas fought and won its independence. Disputes continued over the placement of the border and Mexico never recognized the legitimacy of the new Texas Republic. The US Congress admitted Texas to the Union in 1845 and provoked Mexico into a disastrous war. Many Americans, including Abraham Lincoln and John Quincy Adams, denounced the rush to war as a Southern ploy to expand slavery.

Early in the war, Colonel Stephen Watts Kearney was dispatched to take charge of what became known as the Army of the West. After taking Santa Fe without a shot, Kearney headed west at the head of a column of dragoons. Captain Philip St. George Cook took charge of the Mormon Battalion, whose task was to follow behind Kearney's column and build a wagon road from Santa Fe to San Diego (Starr, 2007; Guerrero, 2006).

The dragoons under Kearney and the Mormon Battalion under Cook both used the Old Sonora Trail through the project area in 1846. The war ended with the Treaty of Guadalupe Hidalgo on February 2, 1848, and as part of the treaty, Mexico ceded Alta California to the US. At that time, the Mexican territory of Alta California also included southern Nevada, southern Utah, and most of Arizona. By the time Alta California was admitted to the Union in 1850 as the State of California, it was only a small fraction of its former self. Gold had been discovered in what is now known as the Mother Lode of California prior to the end of the war. However, it was not made public until March 1848, when the Americans were firmly in control. The sudden influx of American and Europeans quickly drowned out much of the old Californio culture of the Spanish-speaking Catholics born in California prior to 1848. Tens of thousands of gold seekers ("49ers") flooded into California over the Old Sonora Trail through the

Project area and through passes in the Sierra Nevada to the north. The Old Sonora Trail became known as the Southern Emigrant Trail during this period. This influx of gold-seekers and adventurers hastened the decline of the Indians, particularly in the Mother Lode area (Phillips, 1996). In southern California, the rancho system prospered for several years by supplying beef to the tens of thousands of "49ers" flooding the Mother Lode (Starr, 2007:111). These little known California cattle drives preceded the better known Texas drives by about 15 years.

In the 1850s, communication and trade between California and the other states remained expensive, time-consuming, and difficult. In 1857, congress authorized the first transcontinental mail, known as the San Antonio and San Diego Mail. Today, it is sometimes called the Birch Overland Mail after its founder James E. Birch (Lake, 1957; Van Wormer et al., 2007). The Birch Overland Mail used the Southern Emigrant Trail (formerly the western reach of the Santa Fe Trail) through the Project area along what is now CR-S2. It branched off of the Southern Emigrant Trail at Oriflamme Canyon and headed west to San Diego. In the next year, a bigger mail contract was awarded to the Butterfield Overland Mail. This bypassed San Diego and continued north through Los Angeles and on to San Francisco. These historic mail and stage lines used the same route in this area passing through the Ocotillo vicinity (Van Wormer et al., 2007).

As mentioned previously, Yuha Wells were first noted by Anza, who called them Santa Rosa de las Lajas. These wells are sometimes confused with Coyote Wells, southeast of Ocotillo. Coyote Wells were "discovered" by James E. Mason of the Birch Overland Mail in 1857 (Lake, 1957; Van Wormer et al., 2007). It is highly likely that these wells were originally dug by the Kumeyaay. Coyote Wells is not listed as a stage stop and presumably was used as an auxiliary water source by the mail lines and packers.

During the American Period, the homestead system rapidly increased American settlement beyond the coastal plain, which subsequently accelerated the decline of the California Indians (Philips, 1996). Under Mexican rule, full property and civil rights were provided for women and people of color including Indians. The Treaty of Guadalupe Hidalgo preserved these rights, although the American and California state governments ignored these provisions completely in the case of the Indians and forced the Californio land holders to abandon their vast landholdings through lengthy, expensive, and complicated legal proceedings. In less than 20 years, very few ranchos in Alta California remained intact (Starr, 2007:104-105). However, Spanish remained one of the two official languages of California until 1879 (Starr, 2007: 93).

The Colorado Desert area remained largely unaffected by the transition to American control until after 1904, when the Imperial Canal brought water to the Imperial Valley. A small boom in farming and homesteading began, but in 1905, the Colorado River breached the head gate of the Imperial Canal and began to fill the Salton Sink. This created the Salton Sea and threatened to fill the entire valley, re-creating Lake Cahuilla. The river was brought under control in 1907 after a heroic effort led by the Southern Pacific Railroad. In 1935, Hoover Dam was completed finally ending the dramatic floods, and containing the Colorado River which paved the way for other dams and more dependable canal systems.

U.S. Route 80 (US-80) linked El Centro and San Diego in 1915, and the portion of the San Diego Eastern and Arizona Railroad between these towns was completed in 1919. Both of these pass through the project area. These developments facilitated the transport of farm products from Imperial Valley and were a benefit to the local economy. The little village of Ocotillo, encompassed by the project area, was founded as a way station on US-80. In 1940, the modern All-American Canal linked the Colorado River with Imperial Valley. This along with the post WWII boom, attracted more farmers to the area and the Imperial Valley soon became the farming center it remains to this day (Nadeau, 1997). During this time, the Project area was prospected for gold and other minerals. There are the remains of numerous prospect pits and mining claim posts in the project area. The only site of actual mine operations is on the southern slope of Sugarloaf Mountain (site CA-IMP-8806H).

History of the Ocotillo Community

Most of the buildings and structures which are included as part of the potential historical resource reconnaissance survey, are located in, or around, the small town of Ocotillo, California. No definitive written history of the Ocotillo community exists today. What has been published, however, consists of a variety of different source material. Taken collectively, this documentation provides very little detail about the development of the community.

According to *Ocotillo A Place in the Sun* (Bernal, 1986), Ocotillo's first water source, a water well, was drilled by Lloyd James during the 1920s. Beginning in 1933, it is known that Alvin Miller operated a combination garage/restaurant along Old Highway 80 (which was itself completed in 1926). Also in 1933, Ocotillo Townsite, Unit 1 was established. This subdivision was created by John Chalupnik and Mae Marshall who obtained land from the United States Government for .25 cents per acre. The couple then sold 90 lots measuring 90 feet by 120 feet for between $20 and $50 each. In 1947, the first electric wires were introduced to the community.

Historical research indicates that in the mid-1950s, from approximately 1954-1959, the Ocotillo community appears to have experienced modest commercial and residential growth. Review of historic maps does not depict the presence of the community until 1943, at which time it is listed on Blackburn's Map of the Imperial County. Oddly, maps prepared in 1945 and 1956 again fail to list Ocotillo. However, the Coyote Wells USGS Quadrangle Map of 1957 depicts the community with 34 structures within "Section 1" and two (2) structures within "Section 2." Early development, therefore, appears to have occurred largely in "Section 1" most likely due to its close proximity to Old Highway 80 and the center of town. By 1959, the Jacumba USGS Quadrangle Map lists 23 structures within "Section 2." Thus, by the late 1950s, residency was spread fairly evenly between the two sections. In addition, during this period, Weaver's Service Station was built (1954), as well as the Desert Haven (Rock Café) in the mid-1950s, the Pit Stop grocery store (1956-1957), and the Ocotillo Post Office (1957).

Since the 1970s, there has been little development within Ocotillo. Predominantly prefabricated and/or mobile home construction/erection has occurred throughout the community over the past forty years, such that today, the area is largely typified by single-family, prefabricated and mobile home residential development.

3.4.1.2 Cultural Resources Identified Through Native American Consultation

As part of the cultural resources records search conducted prior to the archeological inventory, a Sacred Lands File (SLF) search was conducted by the California Native American Heritage Commission (NAHC). A January 28, 2010, letter from the NAHC states: "The NAHC SLF search did indicate the presence of Native American cultural resources within one-half-mile radius of the proposed project sites (APEs). The letter does not specify the location of the cultural resources referenced. In late 2011 Mr.

David Singleton of the NAHC informed Tierra that since the time of the initial SLF search in January of 2010, Ms. Carmen Lucas requested that the Spoke Wheel Geoglyph (CA-IMP-6988), located in the Project area, be included in the Sacred Lands Inventory along with four other sites not in the Project area. In an August 17, 2011, comment letter to the Draft EIS/EIR, the NAHC again affirmed that Native American cultural resources were identified within the APE, and also noted that the NAHC had been notified that there are reports of human remains, apparently of ancient origin, at six locations within the project area.

The BLM invited Indian Tribes to consult on the OWEF on a government-to-government basis and as part of Section 106 consultation and other relevant laws, policies and regulations at the earliest stages of project planning by letter on February 4, 2010. The letters requested assistance from the Tribes in identifying any issues or concerns about the project, including the identification of sacred sites and places of traditional religious and cultural significance which might be affected. Since February 2010, the BLM has continued to send correspondence and hold Section 106 group meetings seeking input from Tribes and other consulting parties on the all phases of the project's environmental review, the archaeological inventory report, and other issues of concern. At the same time numerous government-to-government meetings took place between the BLM and individual Tribes. While Section 106 consulting party group meetings provide a forum for presenting project updates, presenting the results of cultural resources studies, and open discussion and sharing of ideas about information and concerns with the proposed undertaking, the individual government-to-government meetings with Indian Tribes provide a forum for Tribes to share information and concerns in an individual context with the BLM, apart from other consulting parties and on other matters that may or may not be related to Section 106 issues. The names of Tribes and the dates of these individual meetings are presented in Tables 5-2 and 5.3 (See Section 5.2, Tribal Consultation). In addition, Tribes were encouraged to send designated tribal consultants to participate during the archaeological survey completed for the OWEF. Many Tribes did so and were able to provide important feedback in that manner as well.

During the BLM's ongoing Section 106 consultation process, representatives of some of the Tribes have informed the BLM of a TCP which in their view encompasses the project area and the surrounding region and that this area comprises a landscape which is historically, culturally, religiously and spiritually important. Very strong concern about the project and potential effects to the newly recorded archaeological sites including but not limited to trails, geoglyphs, rock features, habitation areas, previously documented enthographic resources, the viewshed from the Spoke Wheel Geoglyph and other geoglyphs and sacred sites within the project area, and both known and unknown cremations has been expressed to the BLM during Section 106 consultation meetings and government-to-government meetings with Tribal Governments and/or their representatives.

A TCP may be subject to evaluation to determine its eligibility for listing in the National Register based on its "association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (US Department of the Interior, 1990).

The first step in determining whether an entity is eligible for inclusion in the National Register is to ensure that it is a tangible property. The second step in determining eligibility for the National Register is to assess "the integrity of the relationship between a property and the beliefs or practices that may give it significance" (US Department of the Interior, 1990). In addition, the condition of the property must be such that the relevant relationships between a property and the beliefs or practices that give it significance survive (US Department of the Interior, 1990); National Park Services, *National Register Bulletin 38* (Parker and King, 1998).

As with other historic properties, a TCP may be evaluated against the four National Register criteria for eligibility:

(a) Association with events that have made a significant contribution to the broad patterns of our history;

(b) Association with the lives of persons significant in our past;

(c) Embodiment of the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) History of yielding, or potential to yield, information important in prehistory or history.

It may be difficult or impossible to demonstrate that a particular property existed at the time a traditional event took place. In the case of this particular TCP, according to government-to-government consultation with BLM, some events which make this property significant appear to have taken place in a time before the creation of the world as we know it, or at least before the creation of people. Using the techniques of science and history to demonstrate that a given location existed at a given time and place is unneccesary for the purposes of eligibility determination. As long as the "tradition itself is rooted in the history of the group that associates the property with traditional events, the association can be accepted" (Parker and King 1998: 13). Therefore, the period of significance for the proposed TCP/historic district ranges between the creation of humans and the current era.

In consultation with the Tribes, Advisory Council on Historic Preservation (ACHP), and State Historic Preservation Officer (SHPO), the BLM has acknowledged that the TCP is of significant cultural and religious importance to at least some Tribes, and that the project will occur in an environmental setting that includes the TCP as identified by the Tribes and its relationship and association to other sites, and viewsheds including those towards Coyote, Signal and Sugarloaf Mountains.

The tribes have provided some general information about the characteristics of some portions, but not all, of the TCP that make it eligible for the National Register. Based on the applicable guidance, for the purposes of the NEPA/NHPA process for this project, the BLM assumes that the part of the TCP that is within the project APE as described above is eligible for the National Register under Criterion A for its traditional and cultural importance to the Tribes because it is assumed to be:

1) A location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world (geoglyphs and trails);

2) A location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice (geoglyphs, trails, cremations, prayer sticks); and

3) A location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity (village sites, agave procurement sites, camp sites, rock shelters, ceramic and lithic scatters, rock features).

The characteristics that make up this TCP for purposes of this analysis, based on the information provided through tribal consultation, include:

- Viewsheds towards the portions of the natural landscape that surround the project site, including Coyote, Signal, and Sugarloaf Mountains (all of which are outside the APE). These mountains have been identified as sacred corner markers in several Native American belief systems, corridors between the mountains and the proposed project area were part of a corridor used by native peoples in the past, and that these moutains form a key part of their strong connection to the land and the power received from the land.
- Many of the identified archaeological resources within the APE including the other geoglyphs, trails, cremations and other habitation and rock feature sites that are culturally significant (see notations in Table 3.4-3).

Together these features and sites are assumed to have a connection or linkage which makes them a "culturally significant entity." For purposes of the application of Criteria A, "our" may be taken to refer to "the group to which the property may have traditional cultural significance, and the word "history" may be taken to include traditional oral history as well as recorded history" (Parker and King, 1998: 12). The BLM recognizes that the tribes have identified a larger area as being part of the TCP; however, available information about the characteristics of this TCP only allows the BLM to assume the eligibility of certain portions of the identified TCP for the National Register (36 CFR 800.4(c)(1)) pursuant to 36 CFR § 800.4. The tribes will need to provide additional information in order for the BLM to assess and understand the remainder of the TCP including its boundaries, its characteristics and use and potential contributing properties. The BLM acknowledges that further research may also reveal the potential for there to exist within the proposed OWEF a cultural landscape, which may or may not be identified with the TCP as described above. Further discussion about the TCP and the Tribal consultation process for the project is provided in Chapter 5.

3.4.1.3 Identified Archaeological Resources

Previous Research

The archaeological survey for the OWEF began with a records search at the South Coastal Information Center (SCIC) of the California Historical Resources Information System (CHRIS) located at San Diego State University. The purpose of the records search was to identify any previously-recorded cultural resources which may be located within the project area and within a one-mile area surrounding the project area. The record search revealed 39 previous studies conducted within one-mile of the project area; these include 14 studies conducted partially or completely within the project area. Together these 14 studies cover less than ten percent of the project area. The SCIC reported that three other studies have been conducted within the records search area, but these studies are not on file at the SCIC and no information is available.

Previously Recorded Resources

The records search revealed that a total of 210 cultural resources had been previously recorded within the records search study area. Of these 210 resources, 47 were recorded as isolates and 163 were recorded as either archaeological sites or built resources. Of the 210 previously recorded cultural resources, 83 are within the project area. Sixty of these resources were recorded as archaeological sites, 21 were recorded as isolates, and and two resources were recorded as built resources (U.S. Highway 80 [CA-IMP-7886] and the San Diego Eastern and Arizona Railroad [CA-IMP-8489H]; these are addressed in section 3.4.1.3 below). Of the 60 archaeological sites recorded within the project area, six (CA-IMP-3387H thru CA-IMP-3392H) were previously documented from the 1880 General Land Office (GLO) surveyor notes rather than from physical archaeological evidence. While it is possible the resources were present in 1880, the anonymous recorder of these "sites" did not ground truth them, but used only written notes to develop the site records.

Recent studies conducted in support of the Sunrise Powerlink Project cross the project area but, at the time of the records search, these data were not available at the SCIC. However, Tierra subsequently obtained site forms for the Sunrise Powerlink Project as they became available.

NRHP Eligibility of Previously Recorded Resources in the Project Area Identified in the Records Search

The records search conducted for the OWEF indicates that most 59 of the 83 previously recorded resources located within the project area have not been evaluated for eligibility for the National Register of Historic Places (NRHP) or recommended as eligible or ineligible by archaeological consultants. Nineteen of the resources have been previously recommended as not eligible for listing in the NRHP. Two resources, CA-IMP-6920 (Lithic Scatter) and CA-IMP-8806H (Historic Foundations, Mines, Refuse), have been recommended eligible for the NRHP by previous consultants. Two resources, CA-IMP-7886H (Old Highway 80) and CA-IMP-8489H (San Diego Eastern & Arizona Railroad), have been determined eligible for the NRHP by a consensus determination through the Section 106 process. One resource, CA-IMP-6988 (Spoke Wheel Geoglyph), was listed on the NRHP in 2003. The five eligible or listed resources are briefly discussed below.

- **CA-IMP-6920 (Previously Recommended Eligible).** Resource CA-IMP-6920 is an extensive lithic scatter located near the town of Ocotillo and south of Highway 98 within the project area. Schaefer and Moslak (2000) suggest that it was a quarry site with the potential to yield substantial information regarding lithic procurement patterns and lithic reduction. They recommended that the site be determined eligible for inclusion in the NRHP under Criterion D (Schaefer and Moslak, 2000; Schaefer, 2000).
- **CA-IMP-8806H (Previously Recommended Eligible).** Resources CA-IMP-8806H is an historic mine excavated into the south side of Sugarloaf Mountain just north of I-8. It is often referred to as the Sugarloaf Mine. Associated with the mine are tailing piles, concrete foundation pads, rusted metal hardware, and refuse deposits (Gunderman and Dalope 2009). The site was previously recommended eligible for inclusion in the NRHP under Criterion D (Burkard, Connell and Covert, 2007). The site is in the project area, but is outside of the direct impact APE, with much of it located outside of the project area altogether.
- **CA-IMP-7886H (Previously Determined Eligible by Consensus)**. Resource CA-IMP-7886H is the remnant of U.S. Highway 80, or often referred to as "Old Highway 80" or "Evan Hewes Highway." Please see Section 3.4.1.4, Built Environment, for a discussion of this resource.
- **CA-IMP-8489H (Previously Determined Eligible by Consensus)**. Resource CA-IMP-8489H is a small (300') segment of the San Diego Eastern and Arizona Railroad that lies within the Project area. Please see Section 3.4.1.4, Built Environment, for a discussion of this resource.
- **CA-IMP-6988 (NRHP Listed in 2003).** Resource CA-IMP-6988 is what is locally known as the Spoke Wheel Geoglyph and was originally recorded in 1994 by personnel from Imperial Valley College Desert Museum (von Werlhof, 1994). This site has been listed in the NRHP under Criterion C and D since 2003. It consists of a cobble alignment in the shape of a spoke wheel, approximately 8m in diameter. Associated with the geoglyph are artifacts, trail segments, and cairns.

Resource Types

What follows is a summary of the major types of archaeological sites identified within and in the vicinity of the project area (Tierra, 2012a).

Prehistoric Resources

Prehistoric resources are those resources that typically predate AD 1540 in the Colorado Desert. The resources may include those centered around food production, tool stone acquisition and reduction or even temporary camps where small family groups may have spent the night. Prehistoric archaeological resources included artifact scatters, agave processing areas, camp sites, ceramic scatters, lithic scatters, rock feature sites, rock shelters, trails, village sites, geoglyphs and rock art, and cremations.

Artifact Scatters. Artifact scatters lack features and may consist of more than one artifact type. They are usually indicative of short term occupation and may consist of a range of artifact types and materials and, or conversely, be relatively homogeneous. Artifact scatters may include lithic scatters, ceramic scatters, groundstone artifacts, flaked stone artifacts such as multi-functional tools (chopper/scrapers, chopper/hammerstones, scraper/hammerstones, chopper/scraper/hammerstones, etc.), digging tools (described as having one end for grip and use wear on the opposite end consistent with digging), and polishing tools (a rounded cobble with ground polished facet on one face), or any combination of the above.

Agave Processing Areas. This is a relatively common type in the northwestern portion project area. The features are often called agave roasting pits or platforms. Most often they appear physically as a large hearth, i.e., a cluster of cobbles, many of which are fire-affected and often charcoal or charcoal stains are visible. Agave roasting features are typically three or four meters in diameter, while the remains of prehistoric hearths are usually one to two meters in diameter.

Camp Sites. Camp sites represent short periods of occupation and contain fewer artifacts and less artifact diversity than villages. However, camp sites are general use sites. For the purpose of this study, a camp site is defined as a site with evidence of both hunting and gathering activities (e.g., flaked stone artifacts and milling equipment) or a site with a hearth feature (evidence of a camp fire). The presence of a cleared circle or sleeping circle also suggests a camp site. Camp sites rarely have associated midden deposits in dry desert environments.

Ceramic Scatters. Ceramic scatters do not include lithics and generally consist of three or more ceramic sherds within 50 m. They are often from the same vessel and are typically the result of accidental breakage. In rare contexts, it is possible to detect ritual-ceremonial breakage. Urn burials are an example. In this case, cremated remains were gathered up and placed in a vessel that was later buried or cached above ground. These urn burials can be differentiated from broken utilitarian vessels by the presence of calcined bone fragments and/or ash. Ceramic scatters that contain the remains of a single vessel are sometimes referred to as "pot drops" as a way of distinguishing them from scatters of more than one vessel.

Lithic Scatters. Lithic scatters are characterized by waste flakes or by products of tool production or modification, but they may include flaked tools such as cores, bifaces, scrapers, and the like. Lithic scatters may have been created over one or more episodes of lithic reduction. When no subsurface component is present and the density of artifacts is low, lithic scatters are referred to as "sparse lithic scatters."

Rock Feature Sites. There are a few sites in the project area that consist of collections or piles of cobbles that cannot be assigned to other site types. In this example, sites labeled as rock feature sites represent general cobble features whose purpose or function remains unknown.

Rock Shelters. In the Colorado Desert, there are occasional rock overhangs and small dry caves that are collectively referred to as rock shelters. Sometimes they contain the remains of prehistoric camp sites. The interiors of nearly all rock shelters are completely dry, so archaeological materials are often naturally mummified and the preservation of perishable fibers, wood, and leather is excellent.

Trails. Trails refer to paths created by humans through either intentional clearing or repeated travel. Prehistoric and historic trails tend to be approximately 35 to 40 cm wide, while animal trails in the Project vicinity are typically narrower. Human trails tend to link places that people traveled to, whereas animal trails do not, although both can go to springs or other water sources. Human trails also tend to have artifacts or trail features, but these tend to be widely dispersed, so if only a small trail segment is extant, it may lack artifacts and/or features.

Village Sites. Village sites are major habitation sites and have a wide variety of artifacts and ecofacts demonstrating that a wide range of domestic activities took place. They may include hearth features, roasting pits, cleared circles, and/or rock rings. Cleared circles, or sleeping circles, and rock rings are thought to be places where people slept or where windbreaks or temporary roofed shelters with materials of local availability were constructed. Major habitation sites may also have midden deposits, although as described previously, in desert environments, it is not frequently found. There are no recorded village sites in the Project area.

Geoglyphs and Rock Art. Geoglyphs and rock art in the Colorado Desert include geometric shapes, anthromorphs, zoomorphs, and amorphous shapes. They always have spiritual and cultural significance to Native peoples. There are three basic types of geoglyphs or ground figures (intaglios, dance patterns, and rock alignments). They are distinguished by the way they were formed (Tierra Environmental Services, 2010:20):

- *Intaglios* are ground figures created by scraping away the desert pavement of dark pebbles to reveal lighter colored sediment underneath.
- *Dance Patterns* are typically preserved on desert pavement surfaces. They are irregular patterns created by dancing.
- *Rock Alignments* are the third type of geoglyph. They consist of aligned cobbles.

Rock art refers to figures and abstract designs left on cliffs, rock outcrops, or boulders. There are two basic types of rock art based on the method they were made, pictographs and petroglyphs. Pictographs are painted designs, whereas petrogylphs are pecked or scratched designs or figures.

Cremations. Cremations are a special case. There are remains that may be cremations recorded in the Project area, but they are not sites that we would type as cremation sites. Cremations often occur as features within other site types. Cremations have a great deal of spiritual and cultural significance to Native people of the region. Secondary burials of cremated remains in pots occur in the area as well as some cremated remains without funerary urns. Cremations are sometimes associated with "killed" metates. These are metates that have been intentionally broken or have a hole punched through the bottom. Cremations are also sometimes found under overturned (face down) metates. However, a common way for Indians to store metates for future use was to place them upside down. Therefore, while cremations are sometimes found beneath overturned metates, an overturned metate does not necessarily mean cremated remains are nearby.

Cremated remains are typically very small and misshapen, and damaged from being burned at very high heat. This high temperature burning leaves some bone fragments with a blue-white hue; this is referred to as calcined bone. Cooking fires typically burn bone with much less intensely, so most burned bone is charcoal grey. During the archaeological survey, any calcined or charred bone that looked to field archaeologists as if it might be human was treated with a great deal of respect as if they were human remains. Furthermore, all bone that the field archaeologists or Native Americans suggested might be human was examined by Dr. Madeleine Hinkes, a highly qualified anthropological osteologist who is the San Diego County Medical Examiner's representative for potential Native American remains.

Historic-era Resources

Historic-era resources are those resources from the post-contact period after AD 1540 in the Colorado Desert, but to be historic, must be 50 years or older. Historic-era sites and artifacts tend to be more readily visible and interpreted than prehistoric sites since they have not been exposed to the elements for as long. Historic-era resources generally include the refuse deposits or the remnants or runis of historic-period buildings, structures, and objects.

Types of historical resources that may be present in the Colorado Desert include mining sites, railroad sites, refuse scatters, roads, and survey markers and are described below.

Mining Sites. Mines are areas that are used for extracting natural resources. They tend to have associated buildings or foundations and various supporting structures and features. There is evidence of historic calcite and gypsum mining occurring in the general vicinity of the project area. Quarries also fall under this category. The most common types of mining sites in the project area are prospect pits or mining claim posts.

Railroad Sites. The San Diego Eastern and Arizona Railroad runs through part of the project area. Sites associated with this railroad are listed under this site type. Portions of the original track are still being used as a railroad; therefore it is not a true archeological site even though it has been recorded on an archaeological site record.

Refuse Scatters. These sites consist of refuse left behind prior to 1960 that are usually associated with temporary camps of hunters or workers such as crews who installed the railway through the desert. The scatters often consist of glass, cans, nails, scrap metal, and other artifacts.

Roads. This category consists of roads and highways older than 50 years including wagon roads and trails, and associated features and structures such as fords (vados), bridges, and retaining walls.

Survey Markers. This type of resource may be known by several designations (geodetic mark, survey monument, benchmark, etc.) and can be constructed from stamped metal discs to modified boulders in their earliest incarnations. The stamped disks that are common to the area provide information on township and range, section number, and possibly elevation. Many of them include the year they were established as well. Several organizations have been responsible for their placement and are stamped on the mark as well. These may include, U.S. Coast & Geodetic Survey, U.S Department of Interior, Corps of Engineers - U.S. Army Survey Mark, U.S. Geological Survey, and U.S. General Land Office Survey. Marks may be set in concrete, drilled into bedrock, or placed within existing structures and objects. Many have associated rock cairns or posts to facilitate relocation of the mark in subsequent years.

3.4.1.4 Archaeological Survey

Survey Methods

A BLM Class III intensive archaeological survey was conducted for the entire direct impact APE. Intensive surveys were used to methodically inventory these areas and to record the archaeological resources identified therein. Recordation included the detailed documentation of all identified resources, their boundaries and locations, potential significance, appearance and integrity of each resource, and the method of survey. As archaeological resources were identified within the direct impact APE, the locations of turbines were modified in response for the purposes of avoidance and new direct impact APE areas were surveyed and substituted for the avoided areas.

Within the indirect impact APE, a sample survey was conducted of 20 percent of the initially-defined indirect impact APE, or about 1,400 acres. This sample was subjected to an intensive survey using the same standards as those for the BLM Class III survey.

At the most basic pragmatic level, the primary goals of the archaeological survey were to detect prehistoric and historical archaeological resources in the survey area; document these archaeological resources in detail; offer preliminary evaluations for significance based on surface manifestations; and place the new information gained from the survey into the regional research context.

Archaeological fieldwork in support of the proposed Project was conducted between September 2010 and August 2011. The systematic pedestrian survey was conducted with transect intervals no greater than 15 meters. When a site was found, transect intervals were reduced to 5 meter spacing during recordation to fully document the site's features, artifacts and boundaries. The transect intervals were adequate for the identification of archaeological sites, particularly given the excellent ground visibility throughout the project area. Each survey crew consisted of a field director or crew chief plus one to three field archaeologists. Native American consultants were invited to participate in the survey and were present during the entire survey effort (on some occasions there were more than one Native American consultant per crew and on others there were not any).

Both prehistoric and historic sites were defined as three or more artifacts located within 50 m or a single archaeological feature. The archaeological remains of historic features, buildings, and structures older than 50 years in age were considered sites. No artifacts were collected.

Survey Results

Tierra surveyed approximately 11,332 acres during the project's planning and design process. Ground visibility was nearly 100 percent throughout the project area. A total of 287 archaeological sites have been documented within the project area (see Table 3.4-1). Of these 287 sites, 229 are prehistoric sites, 29 are historic-era sites, and 29 are multi-component sites (sites containing both prehistoric and historic-era components).

Table 3.4-1. Archaeological Resources Eligibility and Management Summary

Resource Designation	Site Type	Dimensions (N/S x E/W)	Recommended Eligibility
CA-IMP-008/H	Camp Site, Agave Processing Area, Rock Features & Historic Refuse Scatter	4024 m (NE/SW) by 1610 m (NW/SE)	Eligible (Criterion D)
CA-IMP-055	Artifact Scatter & Rock Feature	140 m by 140 m	Not Eligible
CA-IMP-103/H	Artifact Scatter, Historic Mining Site & Refuse Scatter	1170 m by 1180 m	Eligible (Criterion D)
CA-IMP-443	Lithic Scatter & Rock Features	286 m by 81 m	Eligible (Criterion D)
CA-IMP-1427	Lithic Scatter & Rock Feature	900 m by 1,800 m	Eligible (Criterion D)
CA-IMP-1431/H	Artifact Scatter, Rock Features & Historic Mining Site	800 m by 500 m	Eligible (Criterion D)
CA-IMP-2430	Camp Site	288 m by 226 m	Eligible (Criterion D)
CA-IMP-2471/H	Camp, Cremation, Trail & Historic Refuse Scatter	229 m by 421 m	Eligible (Criterion D); contributor to identified TCP (Criterion A)
CA-IMP-2488	Lithic Scatter & Rock Features	393 m (NE/SW) by 259 m (NW/SE)	Eligible (Criterion D)
CA-IMP-3705/H	Artifact Scatter & Historic Refuse Scatter	367 ft (NW/SE) by 625 ft (NE/SW)	Not Eligible
CA-IMP-3712	Lithic Scatter	154 m by 79 m	Eligible (Criterion D)
CA-IMP-3720H	Historic Mining Site	248 ft (NW/SE) by 188 ft (NE/SW)	Not Eligible
CA-IMP-6508/H	Artifact Scatter, Rock Features & Historic Refuse Scatter	294 m by 84 m	Not Eligible
CA-IMP-6915	Camp Site	354 m (NE/SW) by 525 m (NW/SE)	Eligible (Criterion D)
CA-IMP-6919	Artifact Scatter	129 m by 565 m	Eligible (Criterion D)
CA-IMP-6920	Lithic Scatter &Trail/ Geoglyph	520 m by 510 m	Eligible (Criteria C & D); contributor to identified TCP (Criterion A)
CA-IMP-6921/H	Lithic Scatter, Rock Features, Historic Foundations & Refuse Scatter	70 m by 80 m	Not Eligible
CA-IMP-6922	Lithic Scatter	130 m by 330 m	Not Eligible
CA-IMP-6923/H	Lithic Scatter, Historic Refuse & Road	270 m by 180 m	Eligible (Criterion D)
CA-IMP-6924	Lithic Scatter	131 m by 90 m	Not Eligible
CA-IMP-6988	Artifact Scatter, Agave Processing Area & Geoglyph	920 m by 410 m	Listed (Criteria C & D); Eligible contributor to identified TCP (Criterion A)
CA-IMP-10885/H	Artifact Scatter & Mining Site	132 m (NW/SE) by 60 m (NE/SW)	Not Eligible
OCO-003	Camp Site, Rock Feature & Modern Geoglyph	56 m by 350 m	Eligible (Criterion D)
OCO-008	Lithic Scatter & Rock Feature	380 m by 230 m	Eligible (Criterion D)
OCO-011	Lithic Scatter & Agave Processing Area	12 m by 38 m	Not Eligible
OCO-012	Lithic Scatter & Agave Processing Area	92 m by 59 m	Eligible (Criterion D)
OCO-014	Lithic Scatter & Agave Processing Area	240 m by 91 m	Eligible (Criterion D)
OCO-019	Lithic Scatter & Agave Processing Area	34 m by 29 m	Eligible (Criterion D)
OCO-021	Artifact Scatter & Agave Processing Area	40 m by 47 m	Eligible (Criterion D)
OCO-023	Artifact Scatter & Agave Processing Area	11 m by 44 m	Eligible (Criterion D)
OCO-024	Lithic Scatter	11 m by 44 m	Not Eligible
OCO-025	Lithic Scatter	289 m by 249 m	Not Eligible
OCO-026	Agave Processing Area	10 m by 25 m	Eligible (Criterion D)
OCO-AMC-001/H	Lithic Scatter, Rock Feature & Historic Refuse Scatter	53 m by 147 m	Not Eligible
OCO-AMC-003	Lithic Scatter	165 m (NE/SW) by 45 m (NW/SE)	Not Eligible
OCO-AMC-004	Ceramic Scatter	41 m by 41 m	Eligible (Criterion D)
OCO-AMC-005H	Historic Refuse Scatter	102 ft (NE/SW) by 36 ft (NW/SE)	Not Eligible

Table 3.4-1. Archaeological Resources Eligibility and Management Summary

Resource Designation	Site Type	Dimensions (N/S x E/W)	Recommended Eligibility
OCO-AMC-006	Ceramic Scatter	24 m by 38 m	Not Eligible
OCO-AMC-010H	Historic Refuse Scatter	150 ft (NW/SE) by 85 ft (NE/SW)	Not Eligible
OCO-AMC-027H	Historic Mining Site	213 ft by 217 ft	Not Eligible
OCO-AMC-028	Artifact Scatter & Agave Processing Area	198 m (NW/SE) by 353 m (NE/SW)	Eligible (Criterion D)
OCO-AMC-032	Lithic Scatter	52 m by 27 m	Not Eligible
OCO-AMC-035	Lithic Scatter	30 m by 30 m	Not Eligible
OCO-AMC-042	Lithic Scatter& Rock Features	186 m (NNW/SSE) by 500 m (NNE/SSW)	Eligible (Criterion D)
OCO-AMC-044/H	Artifact Scatter, Agave Processing Area & Historic Mining Site	281 m (NE/SW) by 154 m (NW/SE)	Eligible (Criterion D)
OCO-AMC-052	Lithic Scatter	54 m (NE/SW) by 23 m (NW/SE)	Not Eligible
OCO-AMC-053H	Historic Survey Marker & Rock Feature	7.5 ft (N/S) by 6 ft (E/W)	Not Eligible
OCO-AMC-054	Camp Site & Rock Features	636 m (NE/SW) by 215 m (NW/SE)	Eligible (Criterion D)
OCO-AMC-064	Lithic Scatter	176 m (NE/SW) by 55 m (NW/SE)	Eligible (Criterion D)
OCO-AMC-065	Lithic Scatter	5 m by 12 m	Not Eligible
OCO-AMC-066	Lithic Scatter & Rock Features	6 m by 24 m	Not Eligible
OCO-AMC-067	Lithic Scatter & Rock Features	6 m by 24 m	Not Eligible
OCO-AMC-068/H	Lithic scatter, Rock Features & Historic Mining Site	85 m (NW/SE) by 224 m (NE/SW)	Eligible (Criterion D)
OCO-AMC-069	Lithic Scatter	44 m (NE/SW) by 23 m (NW/SE)	Not Eligible
OCO-AMC-070	Lithic Scatter	86 m (NE/SW) by 10 m (NW/SE)	Not Eligible
OCO-AMC-072	Lithic Scatter & Rock Features	420 m (NE/SW) by 143 m (NW/SE)	Eligible (Criterion D)
OCO-AMC-076/H	Lithic Scatter, Historic Mining Site & Road	98 m by 27 m	Not Eligible
OCO-AMC-078	Lithic Scatter	10 m by 6 m	Not Eligible
OCO-AMC-083	Modern Redeposited Artifact Scatter	87 m by 145 m	Not Eligible
OCO-AMC-086	Lithic Scatter	220 m by 239 m	Eligible (Criterion D)
OCO-AMC-088	Lithic Scatter & Rock Features	433 m (NW/SE) by 297 m (NE/SW)	Eligible (Criterion D)
OCO-AMC-090	Artifact Scatter	246 m (NNE/SSW) by 234 m (ENE/WSW)	Eligible (Criterion D)
OCO-AMC-091	Artifact Scatter & Rock Features	357 m by 113 m	Eligible (Criterion D)
OCO-AMC-094	Agave Processing Area	16 m by 13 m	Eligible (Criterion D)
OCO-AMC-097	Artifact Scatter & Agave Processing Area	122 m by 122 m	Eligible (Criterion D)
OCO-AMC-100	Lithic Scatter & Agave Processing Area	72 m by 50m	Eligible (Criterion D)
OCO-AMC-102	Agave Processing Area	56 m by 27 m	Eligible (Criterion D)
OCO-AMC-125	Agave Processing Area	12 m by 21 m	Eligible (Criterion D)
OCO-AMC-126	Agave Processing Area	144 m (NE/SW) by 56 m (NW/SE)	Eligible (Criterion D)
OCO-AMC-129	Lithic Scatter	4 m by 13 m	Not Eligible
OCO-AMC-130	Lithic Scatter	13 m (NNE/SSW) by 37 m (ENE/WSW)	Not Eligible
OCO-AMC-500T	Trail & Rock Features	70 m by 0.40 m	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-AMC-501T	Trail	33 m by 0.50 m	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-BF-001	Camp Site	80 m by 193 m	Eligible (Criterion D)
OCO-BF-004H	Historic Mining Site	13 m (NNE/SSW) by 37 m (ENE/WSW)	Not Eligible
OCO-BF-005	Lithic Scatter & Rock Features	15 m (NE/SW) by 27 m (NW/SE)	Eligible (Criterion D)
OCO-BF-008	Lithic Scatter	37 m (NW/SE) by 95 m (NE/SW)	Eligible (Criterion D)

Table 3.4-1. Archaeological Resources Eligibility and Management Summary

Resource Designation	Site Type	Dimensions (N/S x E/W)	Recommended Eligibility
OCO-BF-009H	Historic Mining Site	230 ft by 125 ft	Not Eligible
OCO-BF-012	Lithic Scatter	167 m (NW/SE) by 216 m (NE/SW)	Eligible (Criterion D)
OCO-BF-013/H	Lithic Scatter, Rock Features & Survey Markers	85 m (NW/SE) by 90 m (NE/SW)	Eligible (Criterion D)
OCO-BF-017	Lithic Scatter & Rock Features	396 m by 625 m	Eligible (Criterion D)
OCO-BF-018/H	Lithic Scatter & Historic Mining Site	177 m (N/S) by 365 m (E/W)	Eligible (Criterion D)
OCO-BF-019/H	Lithic Scatter & Historic Mining Site	90 m by 435 m	Eligible (Criterion D)
OCO-BF-020	Lithic Scatter	46 m by 87 m	Not Eligible
OCO-BF-026/H	Lithic Scatter& Historic Mining Site	101 m (NW/SE) by 342 m (NE/SW)	Eligible (Criterion D)
OCO-BF-034	Lithic Scatter	61 m (NW/SE) by 161 m (NE/SW)	Not Eligible
OCO-BF-035	Lithic Scatter	18 m (NW/SE) by 46 m (NE/SW)	Not Eligible
OCO-BF-040	Artifact Scatter & Rock Features	300 m by 550 m	Eligible (Criterion D)
OCO-BF-041	Camp Site & Rock Features	43 m by 317 m	Eligible (Criterion D)
OCO-BF-042T	Trail	302 m long by 25 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-BF-044	Agave Processing Area	48 m (NE/SW) by 25 m (NW/SE)	Eligible (Criterion D)
OCO-BF-048	Lithic Scatter & Agave Processing Area	123 m by 45 m	Eligible (Criterion D)
OCO-BF-049	Agave Processing Area	14 m by 20 m	Eligible (Criterion D)
OCO-BF-050	Agave Processing Area	25 m by 21 m	Eligible (Criterion D)
OCO-BF-054	Agave Processing Area	13 m by 16 m	Eligible (Criterion D)
OCO-BF-055	Agave Processing Area	16 m by 14 m	Eligible (Criterion D)
OCO-BF-056	Agave Processing Area	24 m by 26 m	Eligible (Criterion D)
OCO-BF-057	Ceramic Scatter & Agave Processing Area	15 m by 52 m	Eligible (Criterion D)
OCO-BF-059	Lithic Scatter & Agave Processing Area	69 m by 163 m	Eligible (Criterion D)
OCO-BF-060	Artifact Scatter	14 m by 13 m	Not Eligible
OCO-BF-061	Agave Processing Area	23 m by 13 m	Eligible (Criterion D)
OCO-CWB-001T	Trail	39 m long by 33 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-CWB-002T	Trail & Rock Feature	9.6 m long by 30-35 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-CWB-003T	Trail	33.2 m long by 30-35cm	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-CWB-004T	Trail & Rock Features	518.7m long by 30-35 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-EAM-001	Camp Site	83 m (NE/SW) by 289 m (NW/SE)	Not Eligible
OCO-EAM-002	Artifact Scatter & Agave Processing Area	255 m by 90 m	Eligible (Criterion D)
OCO-EAM-005	Lithic Scatter	239 m by 298 m	Eligible (Criterion D)
OCO-EAM-010	Camp Site & Rock Features	470 m (NW/SE) by 900 m (NE/SW)	Eligible (Criterion D)
OCO-EAM-011	Artifact Scatter	11 m by 40 m	Not Eligible
OCO-EAM-012	Camp Site, Trail & Rock Features	120 m by 400 m	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-EAM-013	Lithic Scatter & Rock Features	250 m by 115 m	Eligible (Criterion D)
OCO-EAM-014	Lithic Scatter & Rock Features	260 m (NE/SW) by 170 m (NW/SE)	Eligible (Criterion D)
OCO-EAM-015	Lithic Scatter & Rock Features	190 m (NNW/SSE) by 400 m (NNE/SSW)	Eligible (Criterion D)

Table 3.4-1. Archaeological Resources Eligibility and Management Summary

Resource Designation	Site Type	Dimensions (N/S x E/W)	Recommended Eligibility
OCO-EAM-017	Artifact Scatter	67 m (NE/SW) by 11 m (NW/SE)	Not Eligible
OCO-EAM-018H	Historic Mining Site	69 ft (NE/SW) by 125 ft (NW/SE)	Not Eligible
OCO-EAM-019	Camp Site	80 m by 92 m	Not Eligible
OCO-EAM-020	Artifact Scatter	70 m (NE/SW) by 22 m (NW/SE)	Not Eligible
OCO-EAM-023	Lithic Scatter & Rock Feature	71 m (NE/SW) by 49 m (NW/SE)	Not Eligible
OCO-EAM-024	Lithic Scatter	21 m (NE/SW) by 11 m (NW/SE)	Not Eligible
OCO-EAM-025	Lithic Scatter	27 m by 45 m	Not Eligible
OCO-EAM-026	Lithic Scatter & Rock Feature	35 m by 63 m	Not Eligible
OCO-EAM-027	Lithic Scatter	57 m by 44 m	Not Eligible
OCO-EAM-028	Lithic Scatter	33 m (NE/SW) by 23 m (NW/SE)	Not Eligible
OCO-EAM-030	Lithic Scatter	13 m by 8 m	Not Eligible
OCO-EAM-031	Artifact Scatter & Agave Processing Area	55 m (N/S) by 86 m (E/W)	Eligible (Criterion D)
OCO-EAM-032	Lithic Scatter	100 m (N/S) by 56 m (E/W)	Not Eligible
OCO-EAM-033H	Historic Mining Site	55 ft by 114 ft	Not Eligible
OCO-EAM-034	Agave Processing Area	9 m by 9 m	Eligible (Criterion D)
OCO-EAM-035	Lithic Scatter	9 m by 18 m	Not Eligible
OCO-EAM-036	Lithic Scatter	1 m by 1 m	Not Eligible
OCO-EAM-037	Lithic Scatter	70 m NE/SW by 29 m NW/SE	Not Eligible
OCO-EAM-038	Lithic Scatter	11 m (NE/SW) by 18 m (NW/SE)	Not Eligible
OCO-EAM-039	Lithic Scatter	33 m (NW/SE) by 22 m (NE/SW)	Not Eligible
OCO-EAM-040	Lithic Scatter	17 m by 13 m	Not Eligible
OCO-EAM-042	Camp Site & Agave Processing Area	154 m by 112 m	Eligible (Criterion D)
OCO-EAM-043	Lithic Scatter	1 m by 1 m	Not Eligible
OCO-EAM-044	Lithic Scatter	112 m (N/S) by 68 m (E/W)	Not Eligible
OCO-EAM-046	Agave Processing Area	30 m by 31 m	Eligible (Criterion D)
OCO-EAM-047	Lithic Scatter	63 m (NE/SW) by 21 m (NW/SE)	Not Eligible
OCO-EAM-048H	Historic Mining Site	110 ft (NW/SE) by 55 ft (NE/SW)	Not Eligible
OCO-EAM-049	Agave Processing Area	1 m by 1 m	Not Eligible
OCO-EAM-050	Lithic Scatter	154 m (NNW/SSE) by 87 m (NNE/SSW)	Not Eligible
OCO-EAM-052	Lithic Scatter	149 m (NE/SW) by 60 m (NW/SE)	Not Eligible
OCO-EAM-053	Lithic Scatter & Rock Feature	100 m (NE/SW) by 36m (NW/SE)	Not Eligible
OCO-EAM-054	Artifact Scatter	18 m (NE/SW) by 3 m (NE/SW)	Not Eligible
OCO-EAM-055	Lithic Scatter	61 m (NW/SE) by 161 m (NE/SW)	Not Eligible
OCO-EAM-056T	Trail	430 m long by 20-30 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-EAM-057	Lithic Scatter	90 m (NW/SE) by 305 m (NE/SW)	Not Eligible
OCO-EAM-058	Camp Site & Agave Processing Area	498 m by 706 m	Eligible (Criterion D)
OCO-EAM-061	Artifact Scatter	216 m by 204 m	Not Eligible
OCO-EAM-062	Lithic Scatter	563 m by 132 m	Eligible (Criterion D)
OCO-EAM-064	Rock Feature	2 m by 2 m	Not Eligible
OCO-EAM-065	Lithic Scatter	8 m by 8 m	Not Eligible
OCO-EAM-067/H	Lithic Scatter, Rock Features & Historic Mining Site	185 m (NE/SW) by 134 m (NW/SE)	Not Eligible
OCO-EAM-068	Agave Processing Area	7 m by 6 m	Eligible (Criterion D)
OCO-EAM-069	Lithic Scatter	10 m (NW/SE) by 18 m (NE/SW)	Not Eligible
OCO-EAM-070	Lithic Scatter	7 m by 8 m	Not Eligible
OCO-EAM-071	Lithic Scatter & Rock Feature	80 m by 80 m	Not Eligible
OCO-EAM-072	Lithic Scatter & Rock Features	255 m by 90 m	Eligible (Criterion D)

Table 3.4-1. Archaeological Resources Eligibility and Management Summary

Resource Designation	Site Type	Dimensions (N/S x E/W)	Recommended Eligibility
OCO-EAM-074	Camp Site & Rock Feature	120 m by 100 m	Eligible (Criterion D)
OCO-EAM-075/H	Artifact Scatter, Rock Features & Historic Refuse Scatter	286 m by 160 m	Eligible (Criterion D)
OCO-EAM-076	Lithic Scatter & Rock Feature	15 m by 43 m	Not Eligible
OCO-EAM-077	Camp Site & Rock Features	120 m by 190 m	Eligible (Criterion D)
OCO-EAM-078	Lithic Scatter	19 m by 28 m	Not Eligible
OCO-EAM-079	Lithic Scatter	32 m (NE/SW) by 18 m (NW/SE)	Not Eligible
OCO-EAM-081	Lithic Scatter & Cremation Site	62 m by 36 m	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-EAM-082	Artifact Scatter	41 m by 65 m	Not Eligible
OCO-EAM-083	Artifact Scatter	7 m by 9 m	Not Eligible
OCO-EAM-084	Artifact Scatter & Rock Features	64 m by 111 m	Not Eligible
OCO-EAM-085	Agave Processing Area	10 m by 17 m	Eligible (Criterion D)
OCO-EAM-087	Lithic Scatter	18 m by 50 m	Not Eligible
OCO-EAM-088	Artifact Scatter	10 m by 38 m	Not Eligible
OCO-EAM-089	Agave Processing Area	3 m by 2 m	Not Eligible
OCO-EAM-100	Lithic Scatter & Agave Processing Area	206 m (NW/SE) by 98 m (NE/SW)	Eligible (Criterion D)
OCO-EAM-101	Lithic Scatter & Agave Processing Area	66 m (NE/-SW) by 27 m (NW/-SE)	Eligible (Criterion D)
OCO-EAM-102	Lithic Scatter & Agave Processing Area	98 m (NNW/SSE) by 36 m WSW/ENE)	Eligible (Criterion D)
OCO-EAM-103	Lithic Scatter & Agave Processing Area	40 m (NE/SW) by 20 m (NW/SE)	Eligible (Criterion D)
OCO-EAM-104	Lithic Scatter	20 m by 13 m	Not Eligible
OCO-EAM-106	Lithic Scatter & Agave Processing Area	95 m by 55 m	Eligible (Criterion D)
OCO-EAM-107	Lithic Scatter & Agave Processing Area	31 m (NNE/SSW) by 13 m (WNW/ESE)	Eligible (Criterion D)
OCO-EAM-108	Lithic Scatter & Agave Processing Area	104 m (NNE/SSW) by 71 m (WNW/ESE)	Eligible (Criterion D)
OCO-EAM-109	Lithic Scatter & Agave Processing Area	151 m (NNW/SSE) by 70 m (ENE/WSW)	Eligible (Criterion D)
OCO-EAM-110	Artifact Scatter & Agave Processing Area	65 m by 32 m	Eligible (Criterion D)
OCO-EAM-111	Artifact Scatter & Agave Processing Area	112 m by 72 m	Eligible (Criterion D)
OCO-EAM-112	Lithic Scatter & Agave Processing Area	23 m (NE/SW) by 15 m (NW/SE)	Not Eligible
OCO-EAM-113	Lithic Scatter & Geoglyph	8 m by 12 m	Eligible (Criteria C & D); contributor to identified TCP (Criterion A)
OCO-EAM-114	Lithic Scatter	70 m by 66 m	Not Eligible
OCO-EAM-151	Lithic Scatter	55 m by 68 m	Not Eligible
OCO-EAM-152	Camp Site & Rock Features	145 m by 110 m	Eligible (Criterion D)
OCO-EAM-200T	Trail	15.5 m (SW/NE) long by 50 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-EAM-300H	Historic Mining Site & Refuse Scatter	210 ft by 145ft	Not Eligible
OCO-JLU-173/H	Artifact Scatter & Historic Mining Site	460 m by 1,200 m	Eligible (Criterion D)
OCO-KAM-001T	Trail	317 m (NE/SW) long by 1.2 m wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-KRM-001	Lithic Scatter & Rock Features	31 m by 81 m	Not Eligible
OCO-KRM-003	Artifact Scatter	82 m by 52 m	Not Eligible
OCO-KRM-004	Lithic Scatter	22 m by 56 m	Not Eligible
OCO-KRM-005	Lithic Scatter	141 m by 125 m	Not Eligible

Table 3.4-1. Archaeological Resources Eligibility and Management Summary

Resource Designation	Site Type	Dimensions (N/S x E/W)	Recommended Eligibility
OCO-KRM-006	Artifact Scatter & Rock Features	177 m by 436 m	Not Eligible
OCO-KRM-007	Lithic Scatter	12 m (NW/SE) by 34 m (NE/SW)	Not Eligible
OCO-KRM-008	Lithic Scatter	28 m (NW/SE) by 167 m (NE/SW)	Not Eligible
OCO-KRM-009	Lithic Scatter	7 m (NW/SE) by 34 m (NE/SW)	Not Eligible
OCO-KRM-020	Ceramic Scatter	22 m (WSW/ENE) by 32 m (NNW/SSE)	Not Eligible
OCO-KRM-022	Artifact Scatter	32 m (WSW/ENE) by 2 m (NNW/SSE)	Not Eligible
OCO-KRM-023	Artifact Scatter	45 m (NNE/SSW) by 4 m (ENE/WSW)	Not Eligible
OCO-KRM-024	Artifact Scatter	88 m by 40 m	Not Eligible
OCO-KRM-025	Artifact Scatter	22 m (NE/SW) by 20 m (NW/SE)	Not Eligible
OCO-KRM-026	Artifact Scatter	54 m (NE/SW) by 25 m (NW/SE)	Not Eligible
OCO-KRM-032	Artifact Scatter	2 m by 4 m	Not Eligible
OCO-KRM-033	Ceramic Scatter	61 m (NW/SE) by 25 m (NE/SW)	Not Eligible
OCO-KRM-037	Lithic Scatter	45 m by 102 m	Not Eligible
OCO-KRM-044	Lithic Scatter	45 m by 80 m	Not Eligible
OCO-KRM-048T	Trail	70 m long by 30-35 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-KRM-051	Camp Site & Rock Features	237 m (NE/SW) by 74 m (NW/SE)	Eligible (Criterion D)
OCO-KRM-052/H	Lithic & Historic Refuse Scatter	139 m (NNE/SSW) by 60 m (WNW/ESE)	Not Eligible
OCO-KRM-053	Lithic Scatter	111 m by 39 m	Not Eligible
OCO-KRM-059/H	Artifact Scatter, Rock Features & Survey Markers	144 m by 143 m	Eligible (Criterion D)
OCO-KRM-065T	Trail	Total length of the four segments is 108 m	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-KRM-066T	Trail	20m long	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-KRM-067	Camp Site & Rock Features	437 m (NE/SW) by 207 m (NW/SE)	Eligible (Criterion D)
OCO-LPM-001	Artifact Scatter	20 m by 10 m	Not Eligible
OCO-LPM-002	Lithic Scatter	23 m by 12 m	Not Eligible
OCO-LPM-004	Lithic Scatter & Agave Processing Area	6 m by 12 m	Not Eligible
OCO-LPM-006	Artifact Scatter & Agave Processing Area	24 m by 33 m	Not Eligible
OCO-LPM-007	Lithic Scatter	9 m by 14 m	Not Eligible
OCO-LPM-008	Lithic Scatter	16 m by 25 m	Not Eligible
OCO-LPM-009	Camp Site & Agave Processing Area	435 m by 785 m	Eligible (Criterion D)
OCO-LPM-010	Camp Site & Agave Processing Area	80 m (NE/SW) by 45 m (NW/SE)	Eligible (Criterion D)
OCO-LPM-011T	Trail	494m by 60 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-LPM-012	Agave Processing Area	61 m (NE/SW) by 56 m (NW/SE)	Eligible (Criterion D)
OCO-LPM-013	Agave Processing Area	65 m by 20 m	Eligible (Criterion D)
OCO-MD-001T	Trail	102 m long by 50 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-MD-002T	Trail	46 m long by 50 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)

Table 3.4-1. Archaeological Resources Eligibility and Management Summary

Resource Designation	Site Type	Dimensions (N/S x E/W)	Recommended Eligibility
OCO-MD-003T	Trail	33 m long by 50-75 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-MHN-001T	Trail	61 m long by 40 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-MOW-001H	Historic Refuse Scatter	178 ft (NW/SE) by 428 ft (NE/SW)	Not Eligible
OCO-MOW-002	Artifact Scatter	68 m by 85 m	Not Eligible
OCO-MOW-004H	Historic Refuse Scatter	23 m by 40 m	Not Eligible
OCO-MOW-005	Lithic Scatter	48 m by 30 m	Not Eligible
OCO-MOW-010	Ceramic Scatter	43 m (NE/SW) by 10 m (NW/SE)	Not Eligible
OCO-MOW-011	Ceramic Scatter	54 m (NE/SW) by 22 m (NW/SE)	Not Eligible
OCO-MOW-012/H	Artifact Scatter& Historic Mining Site & Refuse Scatter	109 ft by 286 ft	Not Eligible
OCO-MOW-013/H	Lithic Scatter, Rock Feature, Historic Refuse Scatter & Survey Marker	50 m (NE/SW) by 300 m (NW/SE)	Not Eligible
OCO-MOW-014	Artifact Scatter	32 m By 52 m	Not Eligible
OCO-MOW-016	Artifact Scatter	28 m (NE/SW) by 12 m (NW/SE)	Not Eligible
OCO-MOW-022/H	Artifact Scatter & Historic Mining Site	42 m by 145 m	Not Eligible
OCO-MOW-026H	Historic Mining Site	52 ft by 197 ft	Not Eligible
OCO-MOW-027H	Historic Mining Site	31 ft by 25 ft	Not Eligible
OCO-MOW-028	Artifact Scatter	47 m (NE/SW) by 29 m (NW/SE)	Not Eligible
OCO-MOW-029H	Historic Mining Site	43 m by 19 m	Not Eligible
OCO-MOW-032	Lithic Scatter	110 m (NE/SW) by 40 m (NW/SE)	Not Eligible
OCO-MOW-037H	Historic Mining Site & Survey Marker	256 ft by 116 ft	Not Eligible
OCO-MOW-038	Artifact Scatter	68 m by 55 m	Not Eligible
OCO-MOW-039	Artifact Scatter	17 m (NW/SE) by 31 m (NE/SW)	Not Eligible
OCO-MOW-040H	Historic Mining Site	96 ft (NE/SW) by 56 ft (NW/SE)	Not Eligible
OCO-MOW-042	Artifact Scatter	179 m (NW/SE) by 139 m (NE/SW)	Not Eligible
OCO-MOW-043/H	Ceramic & Historic Refuse Scatter	131 m (NW/SE) by 112 m (NE/SW)	Not Eligible
OCO-MOW-045H	Historic Mining Site	100 ft (NW/SE) by 90 ft (NE/SW)	Not Eligible
OCO-MOW-046H	Historic Mining Site	105 ft by 72 ft	Not Eligible
OCO-MOW-047H	Historic Mining Site & Survey Marker	109 ft (NE/SW) by 40 ft (NW/SE)	Not Eligible
OCO-MOW-048H	Historic Mining Site & Survey Marker	352 ft (NE/SW) by 292 ft (NW/SE)	Not Eligible
OCO-MOW-049H	Historic Refuse Scatter	106 ft by 173 ft	Not Eligible
OCO-MOW-050H	Historic Refuse Scatter	126 ft (NW/SE) by 350 ft (NE/SW)	Not Eligible
OCO-MOW-051	Lithic Scatter	10 m by 10 m	Not Eligible
OCO-MOW-052/H	Ceramic Scatter & Historic Mining Site	173 ft (NW/SE) by 95 ft (NE/SW)	Not Eligible
OCO-MOW-054	Artifact Scatter	99 m by 178 m	Not Eligible
OCO-MOW-055	Camp Site & Rock Features	171 m by 58 m	Eligible (Criterion D)
OCO-MOW-059H	Historic Refuse Scatter	413 ft by 364 ft	Not Eligible
OCO-MOW-064/H	Artifact Scatter & Historic Mining Site & Refuse Scatter	288 m by 500 m	Not Eligible
OCO-MOW-065H	Historic Mining Site	331 ft (NE/SW) by 195 ft (NW/SE)	Not Eligible
OCO-MOW-066	Artifact Scatter	52 m (NE/SW) by 28 m (NW/SE)	Not Eligible
OCO-MOW-067H	Historic Mining Site & Survey Marker	142 ft (NE/SW) by 94 ft (NW/SE)	Not Eligible
OCO-MOW-068	Lithic Scatter & Rock Features	57 m (NW/SE) by 144 m (NE/SW)	Not Eligible
OCO-MOW-069	Lithic Scatter	47 m (NW/SE) by 155 m (NE/SW)	Not Eligible
OCO-MOW-070	Lithic Scatter	60 m by 440 m	Not Eligible
OCO-MOW-071	Lithic Scatter	52 m (NE/SW) by 28 m (NW/SE)	Not Eligible

Table 3.4-1. Archaeological Resources Eligibility and Management Summary

Resource Designation	Site Type	Dimensions (N/S x E/W)	Recommended Eligibility
OCO-MOW-072	Lithic Scatter	32 m (NE/SW) by 12 m (NW/SE)	Not Eligible
OCO-MOW-073H	Historic Mining Site	37 m (NE/SW) by 18 m (NW/SE)	Not Eligible
OCO-MOW-074	Lithic Scatter	13 m by 19 m	Not Eligible
OCO-MOW-200T	Trail	237 m long by 30-35 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-MOW-201T	Trail	171 m long by 30-35 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-MTE-006/H	Camp Site & Historic Mining Site	107 m By 275 m	Eligible (Criterion D)
OCO-SAC-003	Artifact Scatter & Agave Processing Area	660 m (NW/SE) by 320 m (NE/SW)	Eligible (Criterion D)
OCO-SAC-100T	Trail & Rock Features	174 m long by 40 cm wide	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-VAP-023	Artifact Scatter & Cremation Site	20 m (NW/SE) by 48 m (NE/SW)	Eligible (Criterion D); contributor to identified TCP (Criterion A)
OCO-VAP-025	Artifact Scatter	56 m by 811 m	Eligible (Criterion D)
P-13-012210	Road	10560 ft by 12 ft	Not Eligible

In addition to the 287 documented archaeological sites, 28 previously recorded sites and isolates could not be relocated during the survey. Sites that were not relocated but whose previous locations are mapped as falling within a larger site boundary (as defined by Tierra during the survey) were subsumed under the larger site. Sites that were not relocated and whose previous locations are not within a larger site are not addressed further.

Regarding prehistoric resources, high concentrations of lithic procurement sites and knapping stations were documented by the current effort, and it is clear that the project area was an important area for lithic procurement and reduction activities during the prehistoric period. As well, the northwest portion of the project area contains a large number of agave processing areas as evidenced by an extensive number of agave roasting pits/platforms. It should be noted that stands of agave are currently present in this portion of the project area.

Of the 287 sites within the project area, a total of 125 contain lithic scatters and include approximately 20,000 knapping stations. A total of 59 sites contain artifact scatters (generally with a combination of lithics, ceramics, and/or groundstone), and a total of 55 sites contain agave processing areas. A total of 23 prehistoric camp sites were also recorded in the project area.

Nine sites contained ceramic scatters, with both brownware and buffware ceramics represented in the project area. One site contained decorated ceramic sherds. Two of the sites contain prehistoric ceramics that appear to be the result of the re-deposition of a private collection.

Fifty-six sites contain rock features, three sites contain prehistoric geoglyphs, and one site contains a modern geoglyph. A total of 24 trail segments and three historic roads were recorded.

The primary historic-era use of the project area is associated with mining. Most historic-era resources are mining prospects/claims, mines, spoil piles, and associated refuse scatters. The only historically documented mining operation in the project area is locally known as the Sugarloaf Mine, site CA-IMP-8806H, located on Sugarloaf Mountain.

A total of 36 sites with historic mining features and 22 sites with historic refuse scatters were documented in the project area. Eleven survey markers were noted during the survey.

Five sites containing human remains were identified during the survey; however, two of the sites are located in areas that have since been removed from the project area and these two sites are not considered further in this analysis.

A summary of the sites by type is presented in Table 3.4-2.

Table 3.4-2. Summary of Sites by Type

Prehistoric Sites	Count	% of Prehistoric Sites
Agave Processing Area	20	8.734%
Artifact Scatter	30	13.100%
Artifact Scatter & Agave Processing Area	10	4.367%
Artifact Scatter & Cremation Site	1	0.437%
Artifact Scatter & Rock Feature	5	2.183%
Artifact Scatter, Agave Processing Area & Geoglyph	1	0.437%
Camp Site	5	2.183%
Camp Site & Agave Processing Area	4	1.747%
Camp Site & Rock Feature	9	3.930%
Camp Site, Rock Feature & Modern Geoglyph	1	0.437%
Camp Site, Trail & Rock Features	1	0.437%
Ceramic Scatter	6	2.620%
Ceramic Scatter & Agave Processing Area	1	0.437%
Lithic Scatter	70	30.568%
Lithic Scatter & Agave Processing Area	17	7.424%
Lithic Scatter & Cremation Site	1	0.437%
Lithic Scatter & Geoglyph	1	0.437%
Lithic Scatter & Rock Feature	23	10.044%
Lithic Scatter &Trail / Geoglyph	1	0.437%
Rock Feature	1	0.437%
Trail	17	7.424%
Trail & Rock Feature	4	1.747%
Subtotal of Prehistoric Sites	229	100%
Historic Sites	**Count**	**% of Historic Sites**
Historic Mining Site	15	51.720%
Historic Mining Site & Refuse Scatter	1	3.450%
Historic Mining Site & Survey Marker	4	13.790%
Historic Refuse Scatter	7	24.140%
Historic Survey Marker & Rock Feature	1	3.450%
Road	1	3.450%
Subtotal of Historic Sites	29	100%
Multi-Component Sites	**Count**	**Not Applicable**
Artifact Scatter & Historic Mining Site	3	10.344%
Artifact Scatter & Historic Mining Site & Refuse Scatter	1	3.448%
Artifact Scatter & Historic Refuse Scatter	1	3.448%
Artifact Scatter& Historic Mining Site & Refuse Scatter	2	6.896%
Artifact Scatter, Agave Processing Area & Historic Mining Site	1	3.448%
Artifact Scatter, Rock Features & Historic Mining Site	1	3.448%
Artifact Scatter, Rock Features & Historic Refuse Scatter	2	6.900%
Artifact Scatter, Rock Features & Survey Markers	1	3.448%
Camp Site & Historic Mining Site	1	3.448%

Table 3.4-2. Summary of Sites by Type

Prehistoric Sites	Count	% of Prehistoric Sites
Camp Site, Agave Processing Area, Rock Features & Historic Refuse Scatter	1	3.448%
Camp, Cremation, Trail & Historic Refuse Scatter	1	3.448%
Ceramic & Historic Refuse Scatter	1	3.448%
Ceramic Scatter & Historic Mining Site	1	3.448%
Lithic & Historic Refuse Scatter	1	3.448%
Lithic Scatter & Historic Mining Site	2	6.900%
Lithic Scatter, Historic Mining Site & Road	1	3.448%
Lithic Scatter, Historic Refuse & Road	1	3.448%
Lithic Scatter, Rock Feature & Historic Refuse Scatter	1	3.448%
Lithic Scatter, Rock Feature, Historic Refuse Scatter & Survey Marker	1	3.448%
Lithic Scatter, Rock Features & Historic Mining Site	2	6.896%
Lithic Scatter, Rock Features & Survey Markers	1	3.448%
Lithic Scatter, Rock Features, Historic Foundations & Refuse Scatter	1	3.448%
Lithic Scatter, Trail & Historic Mining Site	1	3.448%
Subtotal of Multi-Component Sites	29	100%
Total Site Types	287	N/A

Source: Tierra, 2012a – Table 4.2

Archaeological Resource Significance Recommendations

Based on surface manifestations of the 287 archaeological sites documented within the project area, a total of 127 sites are recommended eligible for inclusion in the NRHP and a total of 160 are recommended not eligible for inclusion in the NRHP. A total of 127 sites are recommended eligible under Criterion D for their potential to answer regional research questions. Regional research questions were developed by Tierra in the *Final Class II & III Inventory and Research Design and Work Plan for the Ocotillo Express Wind Energy Proejct* (Tierra, 2010) for the purpose of evaluating archaeological resources under Criterion D for their relation to regional research issues. Research questions that could be addressed by the majority of these sites include questions related to prehistoric lithic technology, settlement patterns, and site formation processes. Some sites could also address questions related to prehistoric subsistence and land use strategies, ceramic technology, chronology, and inter- and intra-site variability, trade, and ceremonial/religious practices. One multi-component site (CA-IMP-103/H) is also recommended eligible for its potential to address research questions related to historic mining practices.

Three sites that include prehistoric geoglyphs (CA-IMP-6920, CA-IMP-6988, and OCO-EAM-113) are also recommended eligible under Criterion C for their distinctive characteristic of a type and for high artistic value. Twenty-eight sites (with trails, cremations, and/or geoglyphs) are recommended eligible as contributors to the TCP as identified by the Tribes under Criterion A.

During Section 106 consultation, some parties have suggested that the archaeological resources recorded within the project area should be considered together as a district. Districts are significant concentrations, linkages, or continuities of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. Districts derive their importance from being unified entities based on the interrelationships of various individual resources. Examples of districts include business districts, canal or irrigation systems, estates and farms, industrial complexes, rural villages, transportation networks, residential areas, rural historic districts, and groups of habitation sites. According to the US Department of the Interior, National Park Service Cultural Resources, NRHP Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, a district "must be a definable geographic area that can be distinguished from surrounding properties by changes such as density, scale, type, age, style of sites, buildings, structures, and objects or by documented differences in patterns of historic development or associations."

The Archaeological Survey Report (Tierra, 2012a) prepared for the project did not identify the archaeological resources recorded in the proposed OWEF as constituting or contributing to a district. The BLM acknowledges that future research may be relevant to the relationship between the project area and previously identified districts, such as the In-ko-pah Gorge Discontiguous District; Earth Figures of the California-Arizona Colorado River Basin Thematic Group; or the Yuha Basin Discontiguous District. The BLM also acknowledges that future research may also be relevant to the possibility that other districts exist. The BLM has carefully reviewed all available information and concurs with the above eligibility recommendations.

3.4.1.5 Built Environment

Two studies prepared for the project (*The Historical Resources Reconnaissance Survey and Evaluation for the Ocotillo Express Wind Energy Project* [Tierra, 2012b] and *Historical Resources Evaluation and Impact Analysis for the Ocotillo Express Wind Energy Project* [Moomjian, 2012]) identified those historic buildings, structures, sites, objects, and districts located within the the APE: (1) that may be over forty-five years of age; (2) have the potential to be considered either historically and/or architecturally significant; (3) and possess a sufficient degree of original integrity. The APE for built-environment resources was defined as the project area and a 1-mile radius around it, but also includes the community of Nomirage and the Desert View Tower, because of possible visual impacts to these resources.

In May 2011, a *Preliminary Historical Resources Reconnaissance Survey and Evaluation for the Ocotillo Express Wind Energy Project, Imperial County, California* ("Preliminary Survey/Evaluation") was prepared (Tierra, 2011a). This study identified 186 potential historic-period buildings or structures in the APE, the majority of which were historic-period residential structures in the community of Ocotillo.

Subsequent to the preparation of the Preliminary Survey/Evaluation, it was determined that the community of Nomirage, which is located approximately six miles southeast of Ocotillo, should also be evaluated and analyzed to identify the presence of any potential historic-period resources. A second reconnaissance survey was undertaken and approximately 57 potential historic-period resources were found to exist within the Nomirage community. In sum, therefore, a total of approximately two hundred forty-five (245) total potential historic-period resources were identified and evaluated as part of these studies.

The *Historical Resources Evaluation and Impact Analysis for the Ocotillo Express Wind Energy Project* report ("Evaluation/Impact Analysis") (Moomjian, 2012) summarized the results of the reconnaissance surveys and conducted detailed research and evaluation of all potentially eligible built-environment resources.

Built Environment Survey Results and Eligibility Recommendations

As a result of the 2011 Preliminary Survey/Evaluation, the majority (177) of the potential historic-period resources in Ocotillo and all 57 potential historic-period resources in Nomirage were evaluated and recommended as not historically and/or architecturally significant under NRHP or CRHR Criteria.

Of these non-significant resources, the majority consist of Modern style, single-family residential homes or prefabricated/mobile homes, constructed from the 1950s-1980s. Many of these structures, however, do not appear to embody the distinctive characteristics of a type, period, or method of Modern residential construction to be considered historically and/or architecturally significant under NRHP or CRHR Criteria. Overall, while these structures appear to be largely Modern in style, they tend to lack a number of important, character-defining features of a type, period, and method of Modern style construction. In addition, the majority of structures identified within the project area feature additions, modifications, and alterations associated with improvements over the years. In many instances, while some of the resources may possess such original integrity elements as location and setting, they lack original design, materials, workmanship, feeling, and association. Thus, in addition to a lack of original character-defining features, many of the structures lack a sufficient degree of overall integrity to justify further study. No continuity among these resources in terms of shared history, architecture, property type, or year of construction was identified to justify the presence of any potential or actual historic district.

As a result of the 2011 Preliminary Survey/Evaluation, a total of nine resources were identified as potentially significant. The nine resources included the Desert View Tower (1 In Ko Pah Road, Jacumba; P-13-008044); Old Highway 80 (portions of which are included in the project area; P-13-008418); the San Diego Eastern & Arizona Railroad, Desert Line (portions are included in the project area; P-13-009302); Miller's Garage/Restaurant Complex (298 West Highway 80); Weaver's Service Station (14 West Highway 80); Desert Haven Restaurant/Ocotillo Trading Post (Northwest corner of Evan Hewes Highway/Imperial Highway); Original Ocotillo Post Office Buildings (near Northeast corner of Evan Hewes/Imperial Highway); Current Ocotillo Post Office (1153 North Imperial Highway); and a Single-Family Residence (1212 North Imperial Highway).

After further research and evaluation, as documented in the Evaluation/Impact Analysis, three of these nine potentially significant historic built environment resources were recommended as designation-eligible historical resources:

- **The Desert View Tower** (P-13-008044) (which includes the building itself and stone sculptures on the property), is listed on both the NRHP and CRHR as one of eleven California resources which represent twentieth century environmental folk art, with a period of significance from the 1920s-1950s. It is also California Historical Landmark no. 939. The Tower is located approximately 10 miles from the project location. Both the Tower and the surrounding rock sculptures comprise the resource and convey its significance (Selway, Furtado and Hart 1978; P-13-008044). Although not expressly stated in the NRHP Nomination documentation, the Desert View Tower is presumed to have retained its original integrity (Location, Design, Setting, Materials, Workmanship, Feeling, and Association) from its period of significance. This property, therefore, is an historical resource under CEQA and a historic property by virtue of its inclusion in the NRHP and CRHR.
- **Old Highway 80** (P-13-008418) was previously determined eligible for listing on the NRHP and CRHR as part of the Sunrise Powerlink Project in 2007 under Criterion A for its association with early transcontinental highway development, and for its early designation and continued use, providing Imperial Valley's essential east and west vehicular connections, with a period of significance from 1926-1972. Based upon the information contained in the survey form, the present study concurs with the conclusion of historical significance. The survey documentation

expressly states that the resource has retained most of its original integrity (Location, Design, Feeling, Setting, and Association) from its period of significance. This resource is considered an historical resource under CEQA due to the fact that it has been previously recommended eligible for listing in the CRHR, and was identified as significant in an historical resource survey. It was found eligible as part of the Sunrise Powerlink Project by consensus determination.

- **The San Diego Eastern & Arizona Railroad, Desert Line** (P-13-00-9302), was also previously determined eligible for listing on the NRHP and CRHR as part of the Sunrise Powerlink Project in 2007 under Criterion A (Event) for its extremely important role in the development and economy of sections of Imperial County from the 1920s to the present, and under Criterion C (Design/Construction) for its intact roadbed, track engineering. Based upon the information contained in the survey form, the present study concurs with the conclusion of historical significance. The survey documentation indicates that the integrity of the resource appears unchanged and possesses its Location, Design, Setting, Materials, Workmanship, Feeling, and Association from its period of significance. The resource is considered an historical resource under CEQA due to the fact that it has been previously recommended eligible for listing in the CRHR, and was identified as significant in an historical resource survey. It was found eligible as part of the Sunrise Powerlink Project by consensus determination.

The remaining six resources, including Miller's Garage/Restaurant Complex, Weaver's Service Station, the Desert Haven Restaurant/Ocotillo Trading Post, the Original Ocotillo Post Office Buildings, the Current Ocotillo Post Office, and a Single-Family Residence at 1212 North Imperial Highway, were evaluated and recommended as not historically or architecturally significant. The BLM has concurred with the above recommendations.

3.4.2 Applicable Regulations, Plans, and Standards

The applicable federal, State and local regulations, plans, and standards are discussed below and presented in Table 3.4-3. As the NEPA lead agency, the BLM is responsible for compliance with NEPA and Section 106 of the NHPA, and as the CEQA lead agency, Imperial County is responsible for compliance with applicable State and local regulations.

Federal

There are numerous federal regulations, executive orders, and policies that direct management of cultural resources on federal lands and by federal agencies. These include the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Action, the Native American Graves Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), the Antiquities Act and Executive Order 13007 (Indian Sacred Sites). The following is a discussion of the most pertinent laws affecting the proposed project.

The material expressions of past human activities and the types of areas used by people vary across the project region, where cultural resources are managed in accordance with laws, regulations, and guidelines. The principal federal law addressing cultural resources is the NHPA, as amended (16 USC. Section 470). Section 106 of the NHPA requires a federal agency with jurisdiction over a proposed project (referred to as an undertaking under the NHPA) to evaluate the effect of the undertaking on historic properties included on, or eligible for, the NRHP, in consultation with Indian tribes, local government and other interested parties. The implementing regulations (36 CFR, Part 800) describe the process for identifying and evaluating historic properties, for assessing the effects of federal undertakings on historic properties, and for consulting with interested parties, including the State Historic Preservation Office (SHPO) and Indian tribes, to develop measures that would avoid, reduce, or minimize adverse effects. The federal lead agency also consults with Indian tribes on a government-to-government level in accordance with several authorities, including NEPA, the NHPA, AIRFA, and Executive Order (EO) 13007.

Federal agencies must also provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the effects of the proposed project to those properties. The 1992 amendments to the NHPA strengthened tribal involvement in the process (see 5.2.3). The term "historic properties" refers to districts, sites, buildings, structures, objects or cultural resources that are included in, or are eligible for inclusion in the NRHP.

In order to be eligible for the NRHP, historical or cultural resources are generally, but not always, at least 50 years old, have integrity, and meet at least one of the four criteria listed below. Integrity is the property's ability to convey its demonstrated historical significance through location, design, setting, materials, workmanship, feeling, and association. The four eligibility criteria set forth in 36 CFR, 60.4 are as follows:

A. Association with events that have made a significant contribution to the broad patterns of our history;

B. Association with the lives of persons significant to our past;

C. Resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Resources that have yielded or may be likely to yield information important in prehistory or history.

The implementing regulations for Section 106 of the NHPA (36 CFR, Part 800) outline the procedures for identifying and evaluating eligible properties and assessing the effects of federal undertaking on those historic properties, in consultation with interested parties, and to identify ways to avoid, reduce, or minimize adverse effects on those properties. Eligible properties need not be formally listed on the NRHP. As part of the Section 106 process, agencies are required to consult with the SHPO, Indian tribes, local government and other interested parties. Section 106 does not require the preservation of historic properties, but it is designed to ensure that the decisions of federal agencies concerning the treatment of these places result from meaningful considerations of cultural and historic values and of the options available to protect the properties. The OWEF is an undertaking, as defined by 36 CFR 800.3, and therefore is subject to Section 106.

The BLM complies with its obligations under the NHPA through a National Programmatic Agreement (NPA) and a related 2007 State Protocol Agreement, as amended, specific to California. The protocol supplements the NPA with state-specific requirements for managing cultural resources on public lands in California and is used as the primary management guidance by BLM offices in the state for complying with the NHPA. This protocol allows BLM's cultural resource staff to act on the SHPO's behalf under limited circumstances. The BLM may define APEs and the required level of inventory efforts and may determine NRHP eligibility and the effects of undertakings without consulting with the SHPO. However, when undertakings are found to affect historic properties under Section 106 of the NHPA, consultation with SHPO and other interested parties in accordance with 36 CFR 800, and the BLM Manual 8100 series is required. The Section 106 process specific to the OWEF is discussed futher in Chapter 5.

AIRFA establishes a policy of federal protection for traditional American Indian religious freedoms. It seeks to correct federal policies and practices that could (a) deny access to sacred sites required in traditional religions, (b) prohibit use and possession of sacred objects necessary for religious ceremonies, and (c) intrude upon or interfere with religious ceremonies. The BLM complies with AIRFA by obtaining and considering the views of traditional religious practitioners as part of the NEPA compliance process and consultation under Section 106.

EO 13007 directs federal agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners. It requires federal agencies to avoid adversely affecting the physical integrity of sacred sites to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions. EO 13007 reinforces the purposes expressed in AIRFA. The BLM complies with EO 13007 through consulting with tribal governments and Indian religious practitioners as part of the NEPA compliance process and consultation under Section 106.

Requirements for responding to discoveries of Native American human remains and funerary objects, sacred objects, or objects of cultural patrimony on federal or tribal land are addressed under the NAGPRA (Public Law 101-601) and its implementing regulations found at Title 43 CFR Part 10. Whenever there is activity affecting or likely to affect Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony on federal or tribal lands, a federal agency mus prepare a written Plan of Action (POA), in consultation with Indian tribes which outlines the planned treatment, care, handling, and disposition of human remains funerary objects, sacred objects, or objects of cultural patrimony. The BLM is currently preparing a POA. On public lands within the project area, the BLM will comply with the law and regulations by determining lineal descendants and culturally affiliated Indian tribes and by carrying out appropriate treatment and disposition of the discovered remains, including transfer of custody.

The BLM is also required to consider impacts on Indian trust assets, which are lands, natural resources, money, or other assets held by the federal government in trust or that are restricted against alienation for Indian tribes and individual Indians. The United States has a trust responsibility to protect and maintain trust assets reserved by or granted to Indian Tribes or Indian individuals by treaties, statutes, and executive orders.Trust responsibilities for the BLM are found in Department of the Interior Secretarial Order No. 3215 (Principles for the Discharge of the Secretary's Trust Responsibility), Departmental Manual Part 512, Chapter 2 (Departmental Responsibilities for Indian Trust Resources), and BLM Manual H-8120-1. However, because no Indian trust assets are within or near the project area, this resource is not analyzed here.

State

There are numerous state regulations and policies that direct management of cultural resources on state lands and by state agencies. The following is a discussion of the most pertinent laws affecting the proposed project and impact analysis from a state perspective.

Under CEQA (§21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. The *CEQA Guidelines* (§15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources; (2) a resource included in a local register of historical resources, as defined in PRC §5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC §5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC §5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of §21084.1 of CEQA and §15064.5 of the *CEQA Guidelines* apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (*CEQA Guidelines* §§15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of §21083, which is as a unique archaeological resource. As defined in §21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in §21083.2, then the site is to be treated in accordance with the provisions of §21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (§21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* §15064.5(c)(4)).

A resource is considered eligible for inclusion in the CRHR, and therefore a historical resource under CEQA if the resource has been determined to be eligible by the State Historical Resources Commission, if it is at least 50 years old and meets at least one of the CRHR eligibility criteria, or it can be demonstrated that sufficient time has passed to understand its historical importance. Similar to the NRHP, the criteria for CRHR eligibility are as follows:

1. An association with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
2. An association with the lives of persons important to local, California, or national history.
3. An embodiment of the distinctive characteristics of a type, period, region, or method of construction, or a representation of the work of a master, or possesses high artistic values.
4. A resource that has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Impacts on Native American burials on non-federal land are considered under CCR, Title 14, Chapter 3, Section 15064.5(d)(1), Public Resource Code Section 5097.98, and Health and Safety Code Section 7050.5. When an agency identifies the existence of, or the probable likelihood of, Native American human remains on non-federal land within the project, the lead agency is required to work with the appropriate descendants, as identified by the Native American Heritage Commission. In the event of an accidental discovery, the procedures outlined in CCR, Title 14, Chapter 3, Section 15064.5(e) will be followed.

The County has determined that the BLM's assumptions about the existence of a TCP and its eligibility for the NRHP do not require that the County treat it as a historical resource for purposes of the CEQA analysis in this joint document. (As used here, "historical resource" encompasses "archaeological resource" pursuant to CEQA Guidelines Section 15064.5.) CEQA confirms the County's discretion to make a separate CEQA determination under the criteria set forth in the CEQA statute and Guidelines. The County has determined that the project site is not a historic resource under CEQA, and the following is a summary of the basis for the County's determination. The assumed TCP is not listed on the CRHR , and has not been determined by the State Historical Resources Commission to be eligible for such listing, so the site is not a mandatory historical resource under CEQA Guideline 15064.5(a)(1). The assumed TCP also has not formally been determined to be eligible for the National Register, although BLM is assuming such eligibility for the purposes of its NEPA analysis. The site is not included in a local register of historical resources, so the site is not a presumed historic resource under CEQA Guidelines 15064.5(a)(2). The project site also is not a site that is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, so the site is not a discretionary historic resource under CEQA Guideline 15064.5(a)(3).

In making the determination whether the assumed TCP is a historic resource, the County has reviewed the information relating to whether the site has traditional, religious, and cultural significance as well as other information. For purposes of the CEQA analysis, the County as lead agency has determined that substantial record evidence supports a determination that the site is not a historical resource under the definition set forth in CEQA

> **Guideline 15064.5(a)(3). The Tribes have not provided sufficient of tribal or ethnographic information about the use of this project site (historic or otherwise); in light of the paucity of information, the BLM has made a conservative assumption of eligibility as a TCP. In the County's view, the paucity of information supports a finding that the site is not a historic resource. The claim that there is a significant cultural association with the project site has only arisen in the last several years. Some such use may be in response to the proposed project. In addition, the use and status of the site may be compared to that of the Spoke Wheel Geoglyph, a significant historic resource in the project vicinity. Therefore, based on the County's review of the record, the County is making its discretionary determination as CEQA lead agency that the assumed TCP is not a historical resource for CEQA purposes.Local**

The Imperial County General Plan addresses the management of cultural resources within the county in several sections. The following is a discussion of the most pertinent guidance in the Imperial County General Plan affecting the proposed project and impact analysis from a county perspective:

The Protection of Environmental Resources section of the Imperial County General Plan, Land Use Element, 2008 lists Goal 9 as identifying and preserving the significant natural, cultural, and community character resources and the County's air and water quality. The listed objective is to preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes.

The Preservation of Cultural Resources section of the Imperial County General Plan, Conservation and Open Space Element lists Goal 3 as preserving important prehistoric and historic resources to advance scientific knowledge and maintain the traditional historic element of the Imperial Valley landscape. The corresponding objective is to protect and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance.

Consistency with these stated goals will reduce both direct and indirect impacts to the cultural resources in the project area. As currently designed, the proposed project is consistent with Goal 9 and Goal 3 described above.

In addition to the goals and objectives listed above, the Conservation and Open Space Element, Implementation Programs and Policies, Cultural Resources Conservation of the General Plan provides for the following programs:

- Imperial County will use the environmental impact report process to conserve cultural resources, stressing public awareness of cultural heritage. All information and artifactual resources recovered in this process will be stored in an appropriate institution and made available for public exhibit and scientific review.
- The use of open space easements in the conservation of high value cultural resources will be encouraged.
- Consider measures which would provide incentives to report archaeological discoveries immediately to the Imperial Valley College – Baker Museum.

- Coordinate with appropriate federal, state, and local agencies to provide adequate maps identifying cultural resource locations for use during development review. Newly discovered archaeological resources shall be added to the "Sensitivity Map for Cultural Resources."
- Discourage vandalism of cultural resources and excavation by persons other than qualified archaeologists. Imperial County shall study the feasibility of implementing policies and enacting ordinances toward the protection of cultural resources such as can be found in California Penal Code, Title 14, Point 1, Section 622 1/2.

Consistency with these programs will further public awareness of the local cultural heritage by making the information gathered by the applicant available for either public exhibit or scientific review.

Table 3.4-3. Applicable Regulations, Plans, and Standards

Applicable Law	Description
Federal	
National Historic Preservation Act of 1966, as amended, 16 USC 470(f)	Section 106 of the Act requires Federal agencies to take into account the effects of a proposed action on cultural resources (historic properties) and afford the Advisory Council on Historic Preservation the opportunity to comment.
36 CFR Part 800 (as amended August 5, 2004),	Implementing regulations of Section 106 of the National Historic Preservation Act
NEPA: Title 42, USC, section 4321-et seq.	This statute requires Federal agencies to consider potential environmental impacts of projects with Federal involvement and to consider appropriate mitigation measures.
Federal Land Policy and Management Act (FLPMA): Title 43, USC, section 1701 et seq.	This statute requires the Secretary of the Interior to retain and maintain public lands in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric water resource, and archaeological values [Section 1701(a)(8)]; the Secretary, with respect to the public lands, shall promulgate rules and regulations to carry out the purposes of this Act and of other laws applicable to public lands [Section 1740].
Federal Guidelines for Historic Preservation Projects, Federal Register 44739-44738, 190 (September 30, 1983)	The Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards and guidelines are used by Federal agencies, such as the Forest Service, the BLM, and the National Park Service. The California Office of Historic Preservation refers to these standards in its requirements for selection of qualified personnel and in the mitigation of potential impacts to cultural resources on public lands in California.
Executive Order 11593 May 13, 1971 (36 Federal Register 8921)	This order mandates the protection and enhancement of the cultural environment through providing leadership, establishing state offices of historic preservation, and developing criteria for assessing resource values.
American Indian Religious Freedom Act; Title 42, USC, Section 1996	Protects Native American religious practices, ethnic heritage sites, and land uses.
Native American Graves Protection and Repatriation Act (1990); Title 25, USC Section 3001, et seq.,	The stature defines "cultural items," "sacred objects," and "objects of cultural patrimony;" establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for the return of specified cultural items.
BLM, the California Desert Conservation Area (CDCA) Plan 1980 as amended – Cultural Resources Element Goals	1. Broaden the archaeological and historical knowledge of the CDCA through continuing efforts and the use of existing data. Continue the effort to identify the full array of the CDCA's cultural resources.
	2. Preserve and protect representative sample of the full array of the CDCA's cultural resources.
	3. Ensure that cultural resources are given full consideration in land use planning and management decisions, and ensure that BLM-authorized actions avoid inadvertent impacts.
	4. Ensure proper data recovery of significant (National Register of Historic Places-quality) cultural resources where adverse impacts can be avoided.

Table 3.4-3. Applicable Regulations, Plans, and Standards

Applicable Law	Description
State	
CEQA, Sections 21000 et seq. of the Public Resources Code (PRC) with Guidelines for implementation codified in the California Code of Regulations (CCR), Title 14, Chapter 3, Sections 15000 et seq.	CEQA requires that state and local public agencies to identify the environmental impacts of the proposed discretionary activities or projects, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment. Historical resources are considered a part of the environment and a project that may cause a substantial adverse effect on the significance of a historical resource is a project that may have a significant effect on the environment. The definition of "historical resources" is contained in Section 15064.5 of the CEQA Guidelines.
AB 4239, 1976	Established the Native American Heritage Commission (NAHC) as the primary government agency responsible for identifying and cataloging Native American cultural resources. The bill authorized the Commission to act in order to prevent damage to and insure Native American access to sacred sites and authorized the commission to prepare an inventory of Native American sacred sites located on public lands.
Public Resources Code 5097.97	No public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1, 1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the United States Constitution and the California Constitution; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require.
Public Resources Code 5097.98 (b) and (e)	Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reinter the remains elsewhere on the property in a location not subject to further disturbance.
California Health and Safety Code, Section 7050.5	This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner.
Government Code §65352.3 (SB-18)	Prior to the adoption or any amendment of a city or county's general plan, proposed on or after March 1, 2005, the city or county shall conduct consultations with California Native American tribes that are on the contact list maintained by the Native American Heritage Commission for the purpose of preserving or mitigating impacts to places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code that are located within the city or county's jurisdiction.
Local	
Imperial County General Plan, Land Use Element, 2008, Protection of Environmental Resources, Goal 9, Objective 9.1, Page 42	Goal: Identify and Preserve the significant natural, cultural, and community character resources and the County's air and water quality. Objective: Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes.
Imperial County General Plan, Conservation and Open Space Element, Goals and Objectives, Preservation of Cultural Resources, Page 48	Goal 3: Important prehistoric and historic resources shall be preserved to advance scientific knowledge and maintain the traditional historic element of the Imperial Valley landscape. Objective 3.1: Protect and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance.

Table 3.4-3. Applicable Regulations, Plans, and Standards

Applicable Law	Description
Imperial County General Plan, Conservation and Open Space Element, Implementation Programs and Policies, Cultural Resources Conservation, Pages 57–58	Programs: The County will use the environmental impact report process to conserve cultural resources. Public awareness of cultural heritage will be stressed. All information and artifactual resources recovered in this process will be stored in an appropriate institution and made available for public exhibit and scientific review. Encourage the use of open space easements in the conservation of high value cultural resources. Consider measures which would provide incentives to report archaeological discoveries immediately to the Imperial Valley College – Baker Museum. Coordinate with appropriate federal, state, and local agencies to provide adequate maps identifying cultural resource locations for use during development review. Newly discovered archaeological resources shall be added to the "Sensitivity Map for Cultural Resources." Discourage vandalism of cultural resources and excavation by persons other than qualified archaeologists. The County shall study the feasibility of implementing policies and enacting ordinances toward the protection of cultural resources such as can be found in California Penal Code, Title 14, Point 1, Section 622-1/2.

3.5 Environmental Justice

On February 11, 1994, President Clinton issued an "Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (Executive Order 12898, 1994). This Order is designed to focus federal attention on environmental and human health conditions in minority communities and low-income communities. The Order is further intended to promote non-discrimination in Federal Programs substantially affecting human health and the environment and to provide for information access and public participation relating to such matters.

The approach in this EIS/EIR is to achieve compliance with the letter and spirit of the President's Executive Order by addressing the question of whether and how the impacts of the Proposed Action and alternatives may disproportionately affect minority and low-income populations. This section provides demographic information for the analysis of the distributional patterns of minority populations and low-income populations on a regional basis and characterizes the distribution of such populations adjacent to the proposed OWEF site.

3.5.1 Environmental Setting

As defined by the "Final Guidance for Incorporating Environmental Justice Concerns" contained in the Guidance Document of United States EPA's NEPA Compliance Analysis (EPA, 1998), minority and low-income populations are identified where either:

- The minority or low-income population of the affected area is greater than 50 percent of the affected area's general population; or
- The minority or low-income population percentage of the affected area is meaningfully greater (50 percent or greater per EPA Guidance Document) than the minority or low-income population percentage in the general population of the jurisdiction or other appropriate unit of geographic analysis (i.e., County or Native American Indian Reservation) where the affected area is located.

The "affected area" for determining environmental justice impacts for the proposed OWEF includes all jurisdictions within one-half mile (0.5 mile) of the proposed OWEF site. While some types of impacts, such as visual impacts or certain air and water quality impacts, would affect a greater area, using an affected area of one-half mile for environmental justice impacts, rather than 1 or 2 miles, identifies localized impacts of the project. By looking at the localized impacts, as opposed to impacts that would affect everyone residing in a region equally (such as at a scale of 1 or more miles), disproportionate project-specific impacts to minority and low-income populations are identified. Impacts that affect areas outside of one-half mile, such as visual impacts and certain air and water quality impacts would affect the greater region. Thus looking at such a wide area would not identify any disproportionate impacts to minority or low-income populations. By setting the "affected area" at one-half mile for environmental justice, the analysis will focus on the project impacts specific to the populations within the vicinity of the project route rather than the region as a whole.

The proposed OWEF site is located in Census Tract 123.01 in Census Tract Block Groups 1 and 2 in Imperial County. The only other Census Tract Block Groups within one-half mile of the proposed OWEF site are Census Tract Block Groups 3 and 4 within Census Tract 210 in San Diego County.

3.5.1.1 Minority Population

In 1997, the President's Council on Environmental Quality issued Environmental Justice Guidance that defines "minorities" as individuals who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black not of Hispanic origin; or Hispanic (without double-counting non-white Hispanics falling into the Black/African-American, Asian/Pacific Islander, and Native American (Indian) categories).

The total minority population for each census tract, for the purposes of this analysis, has been calculated as follows:

- Total minority population = Black/African-American + Hispanic + Asian/Pacific Islander + Native American (without double-counting non-white Hispanics falling into the Black/African-American, Asian/Pacific Islander, and Native American (Indian) categories)

Table 3.5-1 lists the jurisdictions within one-half mile of the proposed OWEF site, along with the minority percentage of the population of each jurisdiction. As shown in Table 3.5-1, Ocotillo and Census Tract 123.01 Block Group 2 both have substantially lower minority percentages than Imperial County as a whole and are both well below 50 percent. Census Tract 123.01 Block Group 1, in Imperial County, however, with a 2010 minority population of 84 percent, was above 50 percent, but comparable to Imperial County's overall 84 percent. Census Tract 210 Block Groups 3 and 4 were also below 50 percent and below San Diego County's overall 47 percent minority population, although only slightly in the case of Block Group 4.

Table 3.5-1. Population Characteristics of Communities within One-Half Mile of the Proposed Action

Jurisdiction	2000 Minority Percentage	2010 Minority Percentage	2000 Low-Income Percentage	2010 Low-Income Percentage
County of Imperial	51	83	23	22
County of San Diego	34	47	12	15
Ocotillo	5	21	17	31
Census Tract 123.01 Block Group 1 (Imperial County)	76	84	17	20*
Census Tract 123.01 Block Group 2 (Imperial County)	5	24	14	20*
Census Tract 210 Block Group 3 (San Diego County)	30	34	27	12*
Census Tract 210 Block Group 4 (San Diego County)	1	43	25	12*

* 2010 low-income percentages for Imperial County Census Tract 123.01 Block Groups 1 and 2 and San Diego County Census Tract 210 Block Groups 3 and 4 are not available, however, 2009 low-income data is available for Imperial County Census Tract 123.01 and San Diego County Census Tract 210, but not for the Block Groups. The 2009 data is included here.

Source: U.S. Census Bureau, 2000a; U.S. Census Bureau, 2010c; U.S. Census Bureau, 2010d; U.S. Census Bureau, 2010e; U.S. Census Bureau, 2010f; U.S. Census Bureau, 2010g; U.S. Census Bureau, 2010h.

3.5.1.2 Low-Income Population

In 1997, the President's Council on Environmental Quality issued Environmental Justice Guidance that defines "low-income populations" as populations with mean annual incomes below the annual statistical poverty level. Table 3.5-1, above, lists the jurisdictions within one-half mile of the proposed OWEF site, along with the low-income percentage of the population for each jurisdiction. While 2000 U.S. Census Data for poverty is available for all the jurisdictions within one-half mile of the proposed OWEF site, no 2010 data for income or poverty are currently available. The Census Bureau's 2010 American Community Survey has poverty data available for Imperial and San Diego Counties, but not for Ocotillo or at the Block Group level. Similarly, the 2009 American Community Survey does not have data at the

Block Group level, but does include income and poverty data for Ocotillo and at the Census Tract level. As shown above, in 2009, Census Tract 123.01 Block Groups 1 and 2 both had poverty populations lower than Imperial County's overall low-income population of 23 percent. Ocotillo, however, had a greater percentage of people in poverty compared to Imperial County's overall low-income population, but was still well below 50 percent and less than 50 percent greater than Imperial County. Poverty in Census Tract 210 Block Groups 3 and 4 decreased between 2000 and 2009 from more than twice the low-income percentages than San Diego County's overall 2000 low-income population of 12 percent to less than San Diego County's 2010 low-income population of 15 percent. In both cases, Census Tract 210's low-income population was still below 50 percent.

3.5.2 Applicable Regulations, Plans, and Standards

3.5.2.1 Federal

Title VI of the Civil Rights Act of 1964 (Public Law 88-352, 78 Stat.241) prohibits discrimination on the basis of race, color, or national origin in all programs or activities receiving federal financial assistance.

Executive Order 12898, "Federal Actions to address environmental justice in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission (59 Fed. Reg. 7629 (Feb. 16, 1994)). The order requires the US Environmental Protection Agency (USEPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

The Council on Environmental Quality (CEQ) has oversight responsibility for the Federal Government's compliance with Executive Order 12898 and NEPA. The CEQ, in consultation with the USEPA and other agencies, has developed guidance to assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. According to the CEQ's "Environmental Justice Guidance Under the National Environmental Policy Act," agencies should consider the composition of the affected area to determine whether minority populations or low-income populations are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse environmental effects (CEQ, 1997).

BLM Land Use Planning Handbook, H-16010-1, Appendix D, Section IV (Environmental Justice Requirements) provides guidance for assessing potential impacts on population, housing, and employment as they relate to environmental justice. It also describes variables such as lifestyles, beliefs and attitudes, and social organizations with respect to environmental justice. These variables were not evaluated in this analysis, as they cannot be quantified readily for the purposes of impact assessment and do not provide any additional analytical value in terms of evaluating potential environmental justice impacts.

3.5.2.2 State and Local

No State or local regulations, plans or standards related to environmental justice would be applicable to the Proposed Action.

3.6 Lands and Realty

This section describes existing land use conditions in the OWEF project area. Land use can be assessed by analyzing current land activities, land ownership, zoning (where applicable), and land use designations in adopted land use plans and policies. An assessment of land use must also consider legal guarantees or limitations on land use such as those provided by easements, deeds, ROW, claims, leases, licenses, and permits. BLM-administered lands are not zoned, but they may be encumbered by easements, ROWs, mining claims, and permits.

On February 3, 2012, the Applicant submitted a letter to Imperial County indicating that it would no longer be seeking approval for the single wind turbine located on private property. Because this was the only proposed turbine location not located on BLM-administered land, it was the only location that required approval only from Imperial County. Without this turbine location, the project no longer requires a General Plan amendment or zone change to be approved by Imperial County. The Final EIS/EIR has been revised to reflect the fact that a General Plan amendment and zone change are no longer required. For most issue areas, the impact analysis still includes the turbine on private property; however, revisions have been made to the environmental setting associated with Lands and Realty regarding compliance with the County's land use documents.

3.6.1 Environmental Setting

3.6.1.1 General Characteristics

The proposed OWEF would be located almost entirely on BLM-administered lands in the southwest corner of Imperial County (see to Figure 1-1). The site currently consists of vacant and undeveloped desert land. Development in the surrounding area includes the rural communities of Ocotillo and Nomirage, and the United States Gypsum Corporation's wallboard and gypsum manufacturing facility (known as Plaster City) to the east. The western boundary of the site is bordered by the Anza-Borrego Desert State Park, which is managed by the California State Parks.

3.6.1.2 Land Ownership/Management

Figure 3.6-1 shows the current land ownership in the project area. Most of the Proposed Action would be on land that is under the jurisdiction of the BLM, and small portions of the OWEF site would overlap private land under the jurisdiction of Imperial County. BLM land use designations established in the California Desert Conservation Area (CDCA) Plan and the Western Colorado (WECO) OHV Routes of Travel Designation Plan would apply to the majority of the OWEF site that is located on BLM-administered land. The Imperial County General Plan designations and zoning would apply to the portion of the project located on private land.

BLM Land Use Designations

The BLM's CDCA Plan establishes four multiple use classes (MUCs); MUC guidelines; and plan elements for specific resources or activities, such as motorized vehicle access, recreation, and vegetation harvesting. The MUCs include the following: Class C (Controlled), which includes areas recommended as suitable for a wilderness designation; Class L (Limited Use) are lands that are managed for generally lower intensity uses for the purpose of protecting sensitive natural, scenic, ecological, and cultural resource values; Class M (Moderate Use) provides for a wide variety of present and future uses including mining, livestock grazing, recreation, energy, and utility development; Class I (Intensive Use) provides for concentrated use of lands and resources to meet human needs, where reasonable protection is provided for sensitive natural and cultural resources; and Unclassified lands consist of scattered and isolated parcel in the CDCA Plan that have not been place within a MUC and are managed on a case-by-case basis. The majority of the proposed OWEF site (approximately 12,500 acres) is located within the "Limited Use" category of the BLM's CDCA Plan. Figure 3.6-2 shows the MUCs assigned to BLM-administered land in the project area, as designated in the CDCA Plan (BLM, 1980). The MUCs are defined and impacts related to the Proposed Action are analyzed in Section 4.8 of this EIS/EIR.

Imperial County General Plan Land Use Designations

The County's General Plan Land Use Element includes Urban Area and Community Area designations, which provide for a range of permitted land uses within specific geographic areas of the County. The proposed OWEF site and surrounding areas are within the Community Area designation of the General Plan, which assigns the Ocotillo/Nomirage Community Area Plan as the presiding land use planning document. As shown in Figure 3.6-3a, the majority of the OWEF site is within the Open Space designation with small areas within the Floodway and Desert Residential designations. Figure 3.6-3a shows State land along Imperial Highway surrounded by the proposed OWEF site, which is under the jurisdiction of the State Lands Commission. The State land adjacent to the western boundary of the proposed OWEF site is the Anza-Borrego Desert State Park, which is under the jurisdiction of the California State Parks.

Imperial County Zoning Designations

General provisions for the zoning areas are defined in the Imperial County Land Use Ordinance, Title 9 Division 5. Site 2 of the OWEF site is designated as Government/Special (G/S) by the County's Land Use Ordinance (see Figure 3.6-3b). The purpose of the G/S zone is to designate areas that allow for the development of governmental facilities and special public facilities. This zone also allows for special public uses such as security facilities, jails, solid and/or hazardous wastes facilities and other similar special public benefit uses.

3.6.1.3 Existing Uses

The proposed OWEF would be located on 12,500 acres of open desert land in Imperial County that is currently used for recreation activities. Based on a site visit in May 2010, recreation activities include camping, off-highway vehicle (OHV) use, and target shooting.

A new high-voltage transmission line designed to foster development of renewable resources, known as the Sunrise Powerlink (SPL), has been approved by the BLM and other regulatory agencies. The SPL crosses the proposed OWEF site (Figure 2.1-2), facilitating interconnection of the Proposed Action and transmission of its renewable energy output to key load centers in southern California. In addition to the SPL, the existing and approved utilities in the project area include the following: SDG&E 500-kV transmission line, AT&T telecommunication line, San Diego & Arizona Eastern (SD&AE) Railway, Interstate 8, State Route 98, and County roads (Burns & McDonnell, 2010).

As stated in a Corridor Conflict Analysis (CCA) prepared for the Proposed Action, approximately 9,794 acres of the project area lie within two utility corridors, the CDCA Designated Utility Corridor N and the

Section 368 Utility Corridor 115-238. The purpose of the designated CDCA utility corridors is to implement a network of joint-use planning corridors to meet the projected utility needs and concentrate the effects of energy related projects and utilities in manageable locations. (Burns & McDonnell, 2010)

As noted in Section 3.8 (Mineral Resources), a sand and gravel surface mine (the Ocotillo Plant) is located on the project site, and numerous open and closed mines are within two miles of the proposed wind turbines.

The project site is not located within an airport land use plan or within two miles of a public or public use airport. The closest public airport is the Jacumba Airport located 7.3 miles southwest from the OWEF site. Emory Ranch Airport is a private airport located along County Highway S2 approximately 0.25 mile north and south of the project boundary, which consists of a single asphalt runway (identified as 04/22) that is 2,400 feet in length and 40 feet in width (Airport-Data.com, 2011). This is an unattended, family-owned airport with very low use levels (Emory, 2011). For the past two years (2009-2010), the airport has averaged less than 100 aircraft operations (take-off and landing) per year, averaging approximately one aircraft operation every three days (Emory, 2011). However, a Conditional Use Permit is in the final stages of approval which would extend the runway to 4,000 feet and allow for subdivision of the properties north of the runway creating a "fly-in home community," which Mr. Emory anticipates will result in a considerable increase in the use of the airport (Emory, 2011).

3.6.2 Applicable Regulations, Plans, and Standards

3.6.2.1 Federal

Federal Land Policy and Management Act (FLPMA) of 1976

The FLPMA establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. FLPMA Title V, Section 501, establishes BLM's authority to grant ROWs for generation, transmission, and distribution of electrical energy (FLPMA, as amended, 2001). BLM is responsible for responding to requests regarding the development of energy resources on BLM-administered lands in a manner that balances diverse resource uses and takes into account the long-term needs for renewable and non-renewable resources for future generations.

California Desert Conservation Area Plan

The CDCA encompasses 25 million acres in southern California designated by Congress in 1976 through the FLPMA. The BLM manages about 10 million of those acres. Congress directed the BLM to prepare and implement a comprehensive long-range plan for the management, use, development, and protection of public lands within the CDCA. The CDCA Plan, as amended, is based on the concepts of multiple-use, sustained yield, and maintenance of environmental quality. The CDCA Plan provides overall regional guidance for BLM-administered lands in the CDCA and establishes long-term goals for protection and use of the California desert.

The CDCA Plan establishes four multiple-use classes (MUC); MUC guidelines; and plan elements for specific resources or activities, such as motorized vehicle access, recreation, and vegetation. The MUCs are described in Section 3.9, and an analysis of the Proposed Action's compliance with the MUCs is presented in Section 4.8 (BLM, 1980).

Western Colorado (WECO) OHV Routes of Travel Plan

The WECO Plan is an amendment to the CDCA Plan, which modifies previous route designations and existing routes in approximately 475,000 acres of off-road vehicle (OHV) limited areas within Imperial County. Approximately 27 designated OHV routes would be directly or indirectly affected by the proposed OWEF.

3.6.2.2 State

No State regulations associated with lands and realty are applicable to the proposed project.

3.6.2.3 Local

Imperial County General Plan, Land Use Element

Imperial County covers an area of 4,597 square miles within the southeastern portion of the State of California. Approximately 50 percent of Imperial County lands are undeveloped and under federal ownership and jurisdiction. Currently, 20 percent of the nearly 3 million acres of Imperial County is irrigated for agricultural purposes, most notably the central area known as Imperial Valley. The Imperial County General Plan (Imperial County, 2008b) consists of nine elements that serve as the primary policy statement by the Board of Supervisors for implementing development policies and land uses in Imperial County.

The primary purpose of the Land Use Element is to identify the goals, policies, and standards of the General Plan that will guide the physical growth of Imperial County. The Land Use Element describes existing land uses within the county and the facilities and services which provide the public infrastructure to support these uses. Also stated are goals and objectives for future growth, expansion of public facilities, environmental resource protection, and policies and programs to guide such future growth. In particular, the goals and objectives are intended to serve as long-term principles and policy statements representing ideals which have been determined by the citizens as being desirable and deserving of community time and resources to achieve. These goals and objectives, therefore, are important guidelines for land use decision making. (Imperial County, 2008b)

Applicable land use goals and objectives set forth in the Imperial County General Plan, Land Use Element, are as follows:

> Goal 3: Achieve balanced economic and residential growth while preserving the unique natural, scenic, and agricultural resources of Imperial County.
>
> > Objective 3.2 Preserve agriculture and natural resources while promoting diverse economic growth through sound land use planning.
> >
> > Objective 3.6 Recognize and coordinate planning activities as applicable with the BLM, and the California Desert Conservation Plan.
> >
> > Objective 3.8 Utilize non-agricultural land as a resource to diversify employment opportunities and facilitate regional economic growth. Uses must be consistent with each site's resource constraints, the natural environment, and the County Conservation and Open Space Element

Goal 4: Preserve and enhance distinctive historic desert towns and newer communities.

> Objective 4.3 Maintain and require compatible land uses within the existing communities.
>
> Objective 4.4 Limit the establishment of non-residential uses in predominantly residential neighborhoods and require effective buffers when appropriate non-residential uses are proposed.

Goal 6: Promote orderly industrial development with suitable and adequately distributed industrial land.

Goal 8: Coordinate local land use planning activities among all local jurisdictions and state and federal agencies.

> Objective 8.8 Ensure that the siting of future facilities for the transmission of electricity, gas, and telecommunications is compatible with the environment and County regulation.
>
> Objective 8.9 Require necessary public utility rights-of-way when appropriate.

Imperial County General Plan, Conservation and Open Space Element

The Conservation and Open Space Element identifies goals and policies to insure the managed use of environmental resources. The goals and policies are also designed to prevent limiting the range of resources available to future generations (Imperial County, 2006).

The purpose of the Conservation and Open Space Element is to:

- promote the protection, maintenance, and use the county's natural resources with particular emphasis on scarce resources and resources that require special control and management;
- prevent the wasteful exploitation, destruction, and neglect of the State's natural resources;
- recognize that natural resources must be maintained for their ecological value as well as for the direct benefit to the public; and
- protect open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety.

Applicable land use goals and objectives are as follows:

Goal 6: The County shall seek to achieve maximum conservation practices and maximum development of renewable alternative sources of energy.

> Objective 6.6: Encourage compatibility with National and State energy goals and city and community general plans.

Ocotillo/Nomirage Community Area Plan

The Ocotillo/Nomirage Community Area Plan designates the proposed distribution, general location and extent of the uses of land for housing, business, industry, open space, including natural resources, recreation and enjoyment of scenic beauty, education, public buildings and grounds, solid waste disposal facilities and other categories of public and private uses of land. (Imperial County, 1994)

Applicable land use policies in the Ocotillo/Nomirage Community Area Plan are as follows:

IV. Implementation Program and Policies

B. Land Use Designations and Standards

1. Desert Residential

The Desert Residential category represents very low density residential land uses in the outlying areas of the Ocotillo/Nomirage Community Area where water and sewer service is limited or nonexistent. Residential units may consist of a single family dwelling or mobile home. A second dwelling may be allowed upon approval of a conditional use permit. The keeping and raising of farm animals for domestic use is permitted under restrictions defined in the Zoning Ordinance.

Industrial Development Standards:

Manufacturing/industrial zoning and land uses are not permitted in this category.

Imperial County Land Use Ordinance, Title 9, Division 5

Title 9 of the Imperial County Land Use Ordinance contains the comprehensive land use regulations for all unincorporated areas of Imperial County. These regulations are adopted to promote and protect the public health, safety, and general welfare through the orderly regulation of land uses throughout the unincorporated areas of the county. Division 5 includes the regulations and standards for the established zoning areas.

Applicable zoning regulations are as follows:

Chapter 20: G/S (Government/Special Public Zone)

§ 90520.00 Purpose and Application

The purpose of the G/S zone is to designate areas that allow for the construction, development and operation of governmental facilities and special public facilities; primarily this zone allows for all types of government owned and/or government operated facilities, be they office or other uses. It also allows for special public uses such as security facilities, jails, solid and/or hazardous wastes facilities and other similar special public benefit uses.

§ 90520.07 Height Limit

Buildings or structures in the G/S zone shall not exceed six (6) stories or 80 feet, except communication towers which are 100 feet.

3.7 Livestock Grazing

Currently and historically, livestock grazing has been and continues to be a significant use of renewable resources on public land in the California Desert. The Federal Land Policy and Management Act (FLPMA) and the Public Rangelands Improvement Act of 1978 recognize livestock grazing as a principal use for the production of food and fiber (BLM, 1980). Laws that apply to the BLM's management of public lands grazing include the Taylor Grazing Act of 1934, the NEPA of 1969, the Endangered Species Act of 1973, the FLPMA of 1976, and the Public Rangelands Improvement Act of 1978.

According to the 2010 Geocommunicator on the BLM website, there are no livestock grazing allotments located within or adjacent to the proposed OWEF site or ROW application area (BLM, 2010). The McCain Valley rangeland allotment is located approximately 3 miles southwest of the proposed OWEF site, in San Diego County (BLM, 2010). As such, the proposed OWEF site would not contain or traverse any established grazing land.

3.8 Mineral Resources

This section presents a discussion of mineral resources relevant to the proposed OWEF. Baseline geologic information was collected from the U.S. Geological Survey (USGS, 2010), the Natural Resources Conservation Service, the BLM, the California Department of Conservation, the County of Imperial, the proposed OWEF Applicant (Ocotillo Express LLC), and the Preliminary Geotechnical Investigation prepared for the proposed OWEF by Neil O. Anderson & Associates, Inc. The study area addressed in this section includes lands that may be affected directly and/or indirectly) by construction and operation of the proposed OWEF.

3.8.1 Environmental Setting

Mineral resources found throughout Imperial County include gold, gypsum, sand, gravel, lime, clay, and stone. In addition, industrial materials found throughout the county include kyanite, mineral fillers (clay, limestone, sericite, mica, and tuff), salt, potash, calcium chloride, manganese, and sand. The managed use of the valuable mineral deposits is important for regional economic stability. It is also important to ensure that adequate deposits remain for future generations. As described by Imperial County, two issues which surround mineral extraction include land use conflicts and environmental impacts. As a function of geologic factors, mining operations are restricted to specific suitable areas. The Conservation and Open Space Element of the County's General Plan (see Figure 5, Mining Resources, page 26) indicates that mining areas are present in the vicinity of the proposed OWEF site. (Imperial County, 2006)

The BLM groups minerals on federal lands into three distinct categories: (1) Locatable resources (subject to the General Mining Law of 1872, as amended); (2) Leasable resources (subject to various Mineral Leasing Acts); and (3) Salable resources (subject to mineral materials disposed of under the Materials Act of 1947, as amended) (BLM, 2010a). Locatable minerals include hardrock resources that are typically metals with a unique or special use, such as gold and silver. Leasable minerals include those which are typically found in bedded deposits, such as oil, gas, and geothermal resources. Salable minerals include common variety of materials such as sand, stone, and gravel. Local BLM Field Offices are responsible for the selling of mineral materials on public lands; for lands in the vicinity of the proposed OWEF site, the El Centro Field Office has this responsibility. (BLM, 2010b)

- **Locatable Minerals.** There are no active mining claims for locatable minerals within the proposed OWEF area, and there is no locatable minerals activity within the boundaries of the proposed OWEF site. Based on the geological environment and historical trends, the potential for occurrence of locatable minerals is considered low in this area.
- **Leasable Minerals.** The Plan of Development for the proposed OWEF indicates that no oil, gas, or geothermal fields are located in the vicinity of the project site, although approximately one to ten active mineral claims have been made at the project site (OE, 2010). This area is prospectively valuable/medium potential for geothermal resources, and may also be valuable for sodium and potassium.
- **Saleable Minerals / Mineral Materials.** Sand and gravel deposits are common throughout Imperial County, including the proposed OWEF site and vicinity. Construction of the proposed OWEF would require a source of sand and gravel, and it is anticipated that up to three, 15-acre locations within or near the proposed OWEF site would be utilized. Approximately 510,000 pounds of sand, 800,000 pounds of gravel and 240,000 pounds of cement would be needed for each turbine site. Based on a maximum of 158 turbines for the Proposed Action, approximately 32,754 tons of sand, 79,800 tons

of gravel, and 15,785 tons of cement would be required for turbine construction, with additional sand, gravel, and cement required for construction of the substation, utility switchyard, and O&M facilities.

The Mineral Resources Database System (MRDS), administered by the U.S. Geological Survey (USGS), indicates that an active sand and gravel production site called "Ocotillo Plant" is located within the Proposed Action site boundary. The data shows the Ocotillo Plant roughly in the middle of the Proposed Action site, directly east of the Rail Unloading Area, and directly south of the Batch Plant. However, based on detailed biological field surveys conducted by HELIX Environmental Planning, there are no active mines within the project boundaries (HELIX, 2011).

The Plan of Development for the proposed OWEF indicates that no oil, gas, or geothermal fields are located in the vicinity of the project site; however, approximately one to ten active mineral claims have been made at the project site (OE, 2010). The MRDS provides data to describe metallic and nonmetallic mineral resources, including deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references (MRDS, 2010). The MRDS online database was reviewed for the vicinity of the proposed OWEF, and records of surface mines, closed mines, occurrences/prospects, and unknown/undefined resources at the project site and in the immediate vicinity are provided below in Table 3.8-1.

Table 3.8-1. Mineral Resources in the Proposed OWEF Area

Name/Record Number	Operation Type	Ore Minerals or Materials	Mineral Deposit Model	Commodities	Proximity to Turbines	Proximity to Ocotillo
Unnamed	Unknown Occurrence	-	-	Sand and Gravel; Construction	Adjacent to N-NW border	~4.9 miles NW
White Christmas (100234742)	Past Producer / Closed Mine	Diatomite	222: Lacustrine diatomite	Silica, Diatomite	~1.16 miles S and ~1.74 miles W	~2.2 miles SW
White Christmas Deposit (10139638)	Surface Occurrence	-	-	Diatomite	~1.3 miles S	~2.3 miles SW
Stone Quarry (10261084)	Surface / Past Producer	-	-	Stone	~1.7 miles S	~3 miles SW
White Hope Limestone Deposit (10023475)	Unknown / Occurrence	Limestone	-	Limestone, General	~0.5 mile W	~2 miles SW
Weaver (10062391)	Unknown / Past Producer	-	-	Stone, Crushed / Broken	~0.25 miles S	~2.25 miles S
Red Schist Prospect (10062390)	Unknown / Occurrence	Gold	273: Low-sulfide Au-quartz vein	Gold	~0.5 mile S	~2.5 miles S
Ocotillo Material Site (10188258)	Surface Producer	-	-	Sand and Gravel, Construction	~0.7 mile N	~2.25 miles NW
Merrill Ocotillo (10115378)	Surface Producer	-	-	Sand and Gravel, Construction	~0.8 mile N	~2.8 miles NW
Ocotillo Pit (10285385)	Surface Producer	-	-	Sand and Gravel, Construction	~0.3 mile N	~1.8 miles N-NW

Table 3.8-1. Mineral Resources in the Proposed OWEF Area

Name/Record Number	Operation Type	Ore Minerals or Materials	Mineral Deposit Model	Commodities	Proximity to Turbines	Proximity to Ocotillo
Ocotillo Pit (10139178)	Surface / Past Producer	-	-	Sand and Gravel, Construction	~0.75 mile N	~2.25 N-NW
Shell Canyon Pit (10115058)	Surface Producer	-	-	Sand and Gravel, Construction	~0.6 mile N	~2.15 N-NW
Ocotillo Material Pit (10114912)	Surface Producer	-	-	Sand and Gravel, Construction	~0.4 mile N	~1.5 miles N
Raley Deposit (10064339)	Unknown / Past Producer	-	-	Sand and Gravel, Construction	~0.6 mile N	~1.8 miles N
O'Callahan Deposit (10115245)	Surface / Past Producer	-	-	Clay	~0.7 mile N	~1.9 miles N
Mountain Spring Deposit (10260523)	Surface Occurrence	-	-	Limestone, General	~1.3 miles S and ~3.9 miles W	~4 miles SW
Mountain Spring (10023473)	Unknown / Past Producer	Limestone	-	Limestone (primary); Tungsten (tertiary)	~1.3 miles S	~4 miles SW
Red Desert Mine (10115207)	Unknown Occurrence	-	-	Feldspar	~1.5 miles S	~4.9 miles SW

Source: USGS, 2010

The MRDS data provided above in Table 3.8-1 indicates that there are numerous closed and current mineral resources and operations in the vicinity of the proposed OWEF site, as well as one operational mine within the proposed OWEF site, and that most of these occurrences are characterized as "Sand and Gravel, Construction."

In addition to BLM and USGS MRDS data on mineral resource locations, the California Department of Conservation identifies areas of known and likely mineral deposits, and classifies these areas into Mineral Resource Zones (MRZ). Please see Section 3.8.2.2, below, for a description of this mineral classification and designation system. In the case of Imperial County, no MRZ classification or designation has occurred.

As described in Section 2.1.3.2.4 (Gravel, Aggregate, Concrete Needs and Sources) of this EIS/EIR, appropriate sources of sand and gravel in proximity to the proposed OWEF site would be identified by a construction contractor and permitted through the BLM, and would include up to three 15-acre locations within or near the proposed OWEF site.

3.8.2 Applicable Regulations, Plans, and Standards

3.8.2.1 Federal

Mining and Mineral Policy Act of 1970. This act declared that the federal government policy is to encourage private enterprise in the development of a sound and stable domestic mineral industry and in orderly and economic development of mineral resources, research, and reclamation methods.

California Desert Conservation Area Plan. The California Desert Conservation Area (CDCA) Plan defines multiple-use classes for BLM-managed lands within the CDCA, which includes land area encompassing the proposed OWEF site. With respect to geological resources, the CDCA Plan aims to maintain the availability of mineral resources on public lands for exploration and development.

3.8.2.2 State

State Surface Mining and Reclamation Act (SMARA) of 1975. The Surface Mining and Reclamation Act of 1975 (SMARA) mandated the initiation by the State Geologist of mineral land classification in order to help identify and protect mineral resources in areas within the State subject to urban expansion or other irreversible land uses which would preclude mineral extraction. SMARA also allowed the State Mining and Geology Board (SMGB), after receiving classification information from the State Geologist, to designate lands containing mineral deposits of regional or statewide significance. Mineral lands are mapped according to jurisdictional boundaries (i.e., counties), mapping all mineral commodities at one time in the area, using the California Mineral Land Classification System. (DOC, 2000)

The objective of classification and designation processes is to ensure, through appropriate lead agency policies and procedures, that mineral deposits of statewide or of regional significance are available when needed. The SMGB, based on recommendations from the State Geologist and public input, prioritizes areas to be classified and/or designated. Areas which are generally given highest priority are those areas within the State which are subject to urban expansion or other irreversible land uses which would preclude mineral extraction. (DOC, 2000)

Classification is completed by the State Geologist in accordance with the SMGB's priority list, into MRZs, as defined below. Classification of these areas is based on geologic and economic factors without regard to existing land use and land ownership. The following MRZ categories are used by the State Geologist in classifying the State's lands:

- **MRZ-1**—Areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. This zone is applied where well developed lines of reasoning, based on economic-geologic principles and adequate data, indicate that the likelihood for occurrence of significant mineral deposits is nil or slight.
- **MRZ-2a**—Areas underlain by mineral deposits where geologic data show that significant measured or indicated resources are present. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves as determined by such evidence as drilling records, sample analysis, surface exposure, and mine information. Land included in the MRZ-2a category is of prime importance because it contains known economic mineral deposits.
- **MRZ-2b**—Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain discovered deposits that are either inferred reserves or deposits that are presently sub-economic as determined by limited sample analysis, exposure, and past mining history.
- **MRZ-3a**—Areas containing known mineral deposits that may qualify as mineral resources. Further exploration work within these areas could result in the reclassification of specific localities into the MRZ-2a or MRZ-2b categories. MRZ-3a areas are considered to have a moderate potential for the discovery of economic mineral deposits.
- **MRZ-3b**—Areas containing inferred mineral deposits that may qualify as mineral resources. Land classified MRZ- 3b represents areas in geologic settings which appear to be favorable environments

for the occurrence of specific mineral deposits. MRZ-3b is applied to land where geologic evidence leads to the conclusion that it is plausible that economic mineral deposits are present.

- **MRZ-4**—Areas where geologic information does not rule out either the presence or absence of mineral resources. It must be emphasized that MRZ-4 classification does not imply that there is little likelihood for the presence of mineral resources, but rather there is a lack of knowledge regarding mineral occurrence.

If new information becomes available for a MRZ, such as through sampling or mining exploration, re-classification of that MRZ can occur. For example, a MRZ-4 classification could be re-classified to any of the other MRZ classifications. (DOC, 2000)

3.8.2.3 Local – Imperial County

County of Imperial General Plan. The Conservation and Open Space Element of the County of Imperial General Plan contains a goal and objectives to preserve mineral resources in the County. Also, Figure 5 (Mineral Resources) of the Conservation and Open Space Element indicates the general location of known mineral resources in the County.

3.9 Multiple-Use Classes

The following discussion addresses existing Multiple-Use Classes (MUC) at the proposed OWEF site. The affected environment for this analysis describes "baseline" conditions or existing environmental conditions at the time of publishing the Draft EIS/EIR. For the purposes of this analysis, the study area has been defined as the proposed OWEF site. This is an appropriate study area for MUCs as the consistency analysis for MUC designations is site-specific.

3.9.1 Environmental Setting

The CDCA Plan developed a classification system that places BLM-administered public lands in the CDCA into one of four MUCs based on the sensitivity of the resources and types of uses for each geographic area. The CDCA lands in the proposed OWEF site are within 12,500 acres of the Limited Use designation (refer to Appendix A, Figure 3.6-2). The site consists of vacant and undeveloped desert land that is currently used for recreation activities. Based on a site visit in May 2010, recreation activities include camping, off-highway vehicle (OHV) use, and target shooting. Development in the surrounding area includes the rural communities of Ocotillo and Nomirage, and the United States Gypsum Corporation's wallboard and gypsum manufacturing facility (known as Plaster City) to the east. The western boundary of the site is bordered by the Anza-Borrego Desert State Park, which is managed by the California State Parks.

Descriptions of the multiple-use classes are as follows:

> **Class C:** Multiple-Use Class C (Controlled) has two purposes. First, it shows those areas which are being "preliminarily recommended" as suitable for wilderness designation by Congress. This process is explained in the Wilderness Element of the CDCA Plan. Second, it will be used in the future to show those areas formally designated as "wilderness" by Congress.
>
> The Class C Guidelines are different from the guidelines for other classes. They summarize the kinds of management likely to be used in these areas when and if the areas are formally designated wilderness by Congress. These guidelines will be considered in the public process of preparing the final Wilderness Study Reports. However, the final management decisions depend on Congressional direction in the legislation that makes the formal designation.
>
> **Class L:** Multiple-Use Class L (Limited Use) protects sensitive natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.
>
> **Class M:** Multiple-Use Class M (Moderate Use) is based upon a controlled balance between higher-intensity use and protection of public lands. This class provides for a wide variety of present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources which permitted uses may cause.
>
> **Class I:** Multiple-Use Class I is an "Intensive use" class. Its purpose is to provide for concentrated use of lands and resources to meet human needs. Reasonable protection will be provided for

sensitive natural and cultural values. Mitigation of impacts on resources and rehabilitation of impacted areas will occur insofar as possible.

Unclassified Lands: Scattered and isolated parcels of public land in the CDCA that have not been placed within multiple-use classes are "unclassified" land. These parcels will be managed on a case-by-case basis, as explained in the Land Tenure Adjustment Element of the CDCA Plan.

Plan Elements: The CDCA Plan Elements provide specific application of the multiple-use class guidelines for specific resources or activities about which the public has expressed significant concern.

3.10 Noise

The following discussion addresses existing environmental conditions in the affected area, both regionally and specific to the proposed OWEF site. In addition, existing laws and regulations relevant to noise are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with implementation of the proposed OWEF.

Data collection was conducted through review of Pattern Energy's Permit Application (Pattern, 2010). The study area was defined as the proposed OWEF site and areas within approximately one mile of the proposed OWEF site (see Figure 2.1-4 in Appendix A). Roadways accessing the project area were also included, such as Interstate 8 (I-8), Evan Hewes Highway, Highway 98 (SR-98), and Imperial Highway (County Highway S2). The current noise conditions in this study area were used as the baseline against which to compare potential impacts of the proposed OWEF.

Section 3.10.1 presents the environmental setting for the proposed project relevant to noise, including general information about noise fundamentals, and Section 3.10.2 presents the regulatory setting. Section 4.9 presents the noise impacts of the proposed OWEF, including the WTGs, electrical collection system, substation and switchyard, and operations and maintenance (O&M) facility, and lists mitigation measures that would minimize impacts to the extent feasible.

3.10.1 Environmental Setting

General Information on Noise

Noise is defined as unwanted sound. Noise can be described in terms of three variables: amplitude (loud or soft), frequency (pitch), and time pattern (variability), and its potential effects can be described in terms of a noise generating source, a propagation path, and a receiver (FTA, 2006). The ambient sound level of a region is defined by the total noise generated within the specific environment and is usually composed of sound emanating from natural sources (birds, leaves, etc.) and from human activities (yard maintenance, vehicles, talking, etc.). Ambient sound levels vary with time of day, wind speed and direction, and level of human activity. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Excessive noise exposure has been shown to cause interference with human activities at home, work, or recreation; community annoyance, hearing loss, and affect people's health and well-being. Even though hearing loss is the most clearly measurable health hazard, noise is also linked to other psychological, sociological, physiological, and economical effects, either temporary or permanent (EPA, 1974). Potential human annoyance and health effects associated with noise may vary depending on factors such as: (1) the difference between the new noise and the existing ambient noise levels; (2) the presence of tonal noise, noticeable or discrete continuous sounds, such as hums, hisses, screeches, or drones; (3) low frequency noise (frequency range of 8 to 1,000 Hertz [Hz]); (4) intermittent or periodic sounds, such as a single vehicle passing by, backup alarms, or machinery that operates in cycles; and (5) impulsive sounds from impacts or explosions (Brüel and Kjaer, 2000).

To describe environmental noise and to assess impacts on areas sensitive to community noise, a frequency weighting measure that simulates human perception is customarily used. The frequency weighting scale known as A-weighting best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. In general, a difference of more than 3 dBA is a perceptible change in environmental noise, while a 5 dBA difference typically causes a change in community reaction. An increase of 10 dBA is perceived by people as a doubling of loudness, and almost certainly causes an adverse community response. However, at many wind project sites on BLM-administered lands, large fluctuations in broadband noise are common, and even a 10 dB increase would be unlikely to cause an adverse community response (BLM, 2005). Alternatively, noise containing discrete tones (tonal noise) is much more noticeable and more annoying at the same relative loudness level than other types of noise, because it stands out against background noise (BLM, 2005).

People experience a wide range of sounds in the environment. Typical noise levels of indoor/outdoor environments are shown in Figure 3.10-1. Excessive noise cannot only be undesirable but may also cause physical and/or psychological damage. The amount of annoyance or damage caused by noise is dependent primarily upon the amount and nature of the noise, the amount of ambient noise present before the intruding noise, and the activity of the person working or living in the area. Environmental and community noise levels rarely are of sufficient intensity to cause irreversible hearing damage, but disruptive environmental noise can interfere with speech and other communication and be a major source of annoyance by disturbing sleep, rest, and relaxation.

Decibels are logarithmic units[1] that conveniently compare the wide range of sound intensities to which the human ear is sensitive. Therefore, the cumulative noise level from two or more sources will combine logarithmically, rather than linearly (i.e., simple addition). For example, if two identical noise sources produce a noise level of 50 dBA each, the combined noise level would be 53 dBA, not 100 dBA.

Sound is generally propagated by spherical spreading according to the "inverse square law"[2]. For noise, the sound energy decreases with the square of the distance. As such, the sound pressure level would be reduced by 6 dB per doubling of distance from a ground-level stationary or point source. For a noise source which is relatively long, such as a constant stream of highway traffic (line source), the sound pressure spreads at a rate of 3 dB per doubling of distance. The drop-off rate also varies with both terrain conditions and the presence of obstructions in the sound propagation path. At very large distances, beyond several hundred feet, wind and temperature gradients influence sound propagation. Changes in noise levels due to wind are generally short-term without persistent directional winds, where some hours may be a decibel or two louder than others within the margin of precision of such an assessment.

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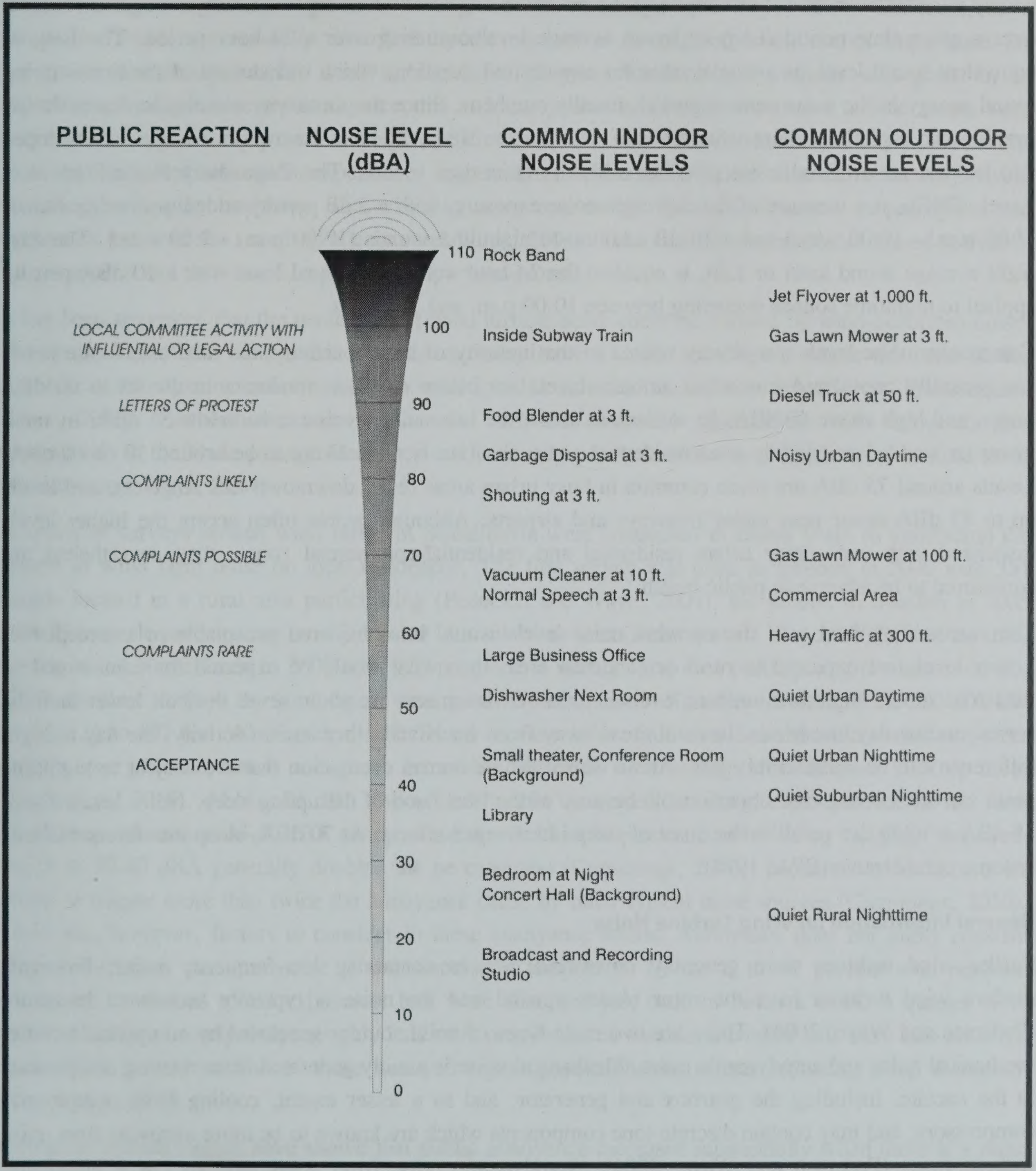
[1] The logarithm of a number to a given base is the exponent by which the base has to be raised to produce that number. For example, the logarithm of 1000 to base 10 is 3, because 1000 is 10 to the power 3 ($1000 = 10^3 = 10 \times 10 \times 10$). A logarithmic scale is a scale of measurement using the logarithm of a physical quantity (i.e., logarithmic unit) instead of the quantity itself. A simple example is a chart whose vertical axis increments are labeled 1, 10, 100, 1000, instead of 1, 2, 3, 4. Each unit increase on the logarithmic scale thus represents an exponential increase in the underlying quantity for the given base (10, in this case). Presentation of data on a logarithmic scale can be helpful when the data cover a large range of values.

[2] The inverse square law is any physical law stating that a specified physical quantity is inversely proportional to the square of the distance from the source of that physical quantity.

Figure 3.10-1. Noise Levels of Common Sounds



The community noise environment and the consequences of human activities cause noise levels to be widely variable over time. For simplicity, sound levels are usually best represented by an equivalent level over a given time period (Leq) or by an average level occurring over a 24-hour period. The Leq, or equivalent sound level, is a single value for any desired duration, which includes all of the time-varying sound energy in the measurement period, usually one hour. Since the sensitivity to noise increases during evening and nighttime hours when people are trying to sleep, 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time sounds. The Community Noise Equivalent Level, CNEL, is a measure of the day-night noise exposure, with a 5 dB penalty added to evening sounds (7:00 p.m. - 10:00 p.m.) and a 10 dB addition to nighttime sounds (10:00 p.m. - 7:00 a.m.). The day-night average sound level or Ldn, is equal to the 24-hour equivalent sound level with a 10 dBA penalty applied to nighttime sounds occurring between 10:00 p.m. and 7:00 a.m.

Community noise levels are closely related to the intensity of human activity and land use. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, the Ldn noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the Ldn is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas (e.g., downtown Los Angeles), and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be adverse to public health.

The surrounding land uses dictate what noise levels would be considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding daytime levels. In rural areas away from roads and other human activity, the day-to-night difference can be considerably less. Areas with full-time human occupation that are subject to nighttime noise are often considered objectionable because of the likelihood of disrupting sleep. Noise levels above 45 dBA at night can result in the onset of sleep interference effects. At 70 dBA, sleep interference effects become considerable (EPA, 1974).

General Information on Wind Turbine Noise

Earlier wind turbines were generally downwind devices containing low-frequency noise; however, modern wind turbines have the rotor blades upwind and the noise is typically broadband in nature (Pedersen and Waye, 2004). There are two main types of noise sources generated by an upwind turbine: mechanical noise and aerodynamic noise. Mechanical noise is mainly generated from rotating components in the nacelle, including the gearbox and generator, and to a lesser extent, cooling fans, pumps, and compressors, and may contain discrete tone components which are known to be more annoying than noise without tones (Pedersen and Waye, 2004). Aerodynamic noise from wind turbines has a broadband character. It originates mainly from the flow of air over the turbine blades; therefore, the sound pressure levels (SPLs) increase with tip speed. Aerodynamic noise is typically the dominant component of wind turbine noise, as manufacturers have been able to reduce the mechanical noise to a level below the aerodynamic noise. Typical sound power levels of a modern wind turbine range from 98 to 104 dBA at a wind speed of 8 meters/second (m/s), which result in 33 to 44 dBA at a dwelling 1,640 feet (500 meters) away, though this depends on meteorological and ground conditions (Pederson and Waye, 2007).

International field studies of annoyance from wind turbines have generally found a weak relationship between annoyance and the equivalent A-weighted SPL (Pedersen and Waye, 2004). Different sound properties, which are not fully described by the equivalent A-weighted level, are of importance for perception and annoyance for wind turbine noise. Support for such a hypothesis was given in an experimental study where reported perception and annoyance for five recorded wind turbine noises were different, although the equivalent A-weighted SPL were the same (Pedersen and Waye, 2004). The results from that study and subsequent experiences suggest that the presence of sound characteristics subjectively described as lapping, swishing, and whistling were responsible for the differences in perception and annoyance between the sounds (Pedersen and Waye, 2004). These sound characteristics are of relevance for perception and annoyance, especially at low background levels.

It has been suggested that the perception of wind turbine noise could be masked by wind-generated noise; however, most of the wind turbines operating today have a stable rotor speed where the rotor blades generate an aerodynamic noise even if the wind speed is slow and the ambient noise is low (Pedersen and Waye, 2004). Furthermore, noise from wind turbines comprises modulations with frequency that corresponds to the blade passage frequency and is usually poorly masked by ambient noise in rural areas (Pedersen and Waye, 2004).

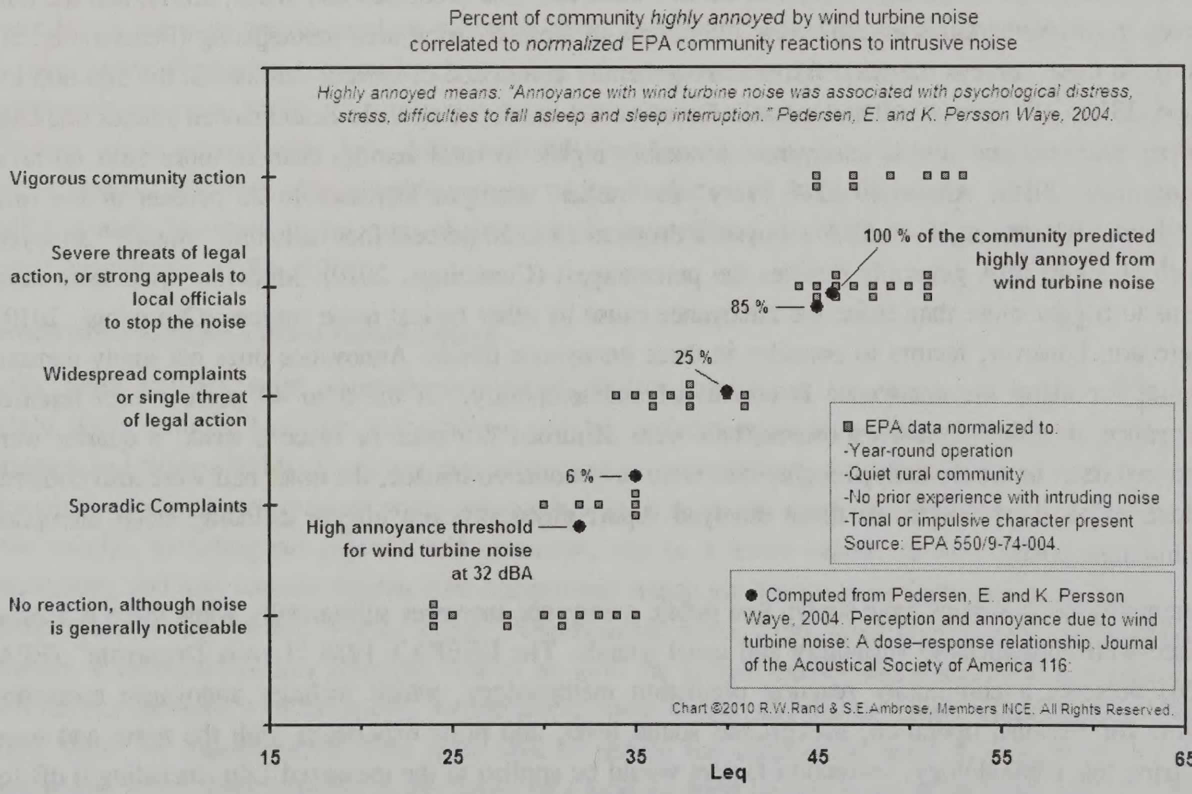
A series of surveys around wind farms in Scandinavia were conducted in recent years to understand the effects of wind farm noise on local residences. The first survey was done in Sweden in 2000 with 351 people located in a rural area participating (Pedersen and Waye, 2004); the second in Sweden in 2005 with 754 people participating mostly located in a suburban area (Pedersen and Waye, 2007); and the third survey in the Netherlands in 2007 with 725 people in a mostly rural area participating (Pederson et. al., 2009). In these surveys the wind farms were generally comprised of smaller turbines in the 500-800 kW range, 131 to 197 feet (40-60 meters) tall. Based on the results of all three Scandinavian studies one clear pattern emerges, and that is annoyance is notably higher in rural settings than in more built up areas (Cummings, 2010). Above 40 dBA “very” or “rather” annoyed increases to 25 percent of the rural population, whereas at 35-40 dBA annoyance drops to 15 to 20 percent (not including “slightly” annoyed, which at 30-40 dBA generally doubles the percentages) (Cummings, 2010). Moderate wind farm noise seems to trigger more than twice the annoyance cause by other typical noise sources (Cummings, 2010). There are, however, factors to consider in these annoyance trends. Annoyance does not imply constant plague; for many the annoyance is occasional and temporary. Of the 5 to 40 percent who reported annoyance at various sound exposures, half were disturbed just once or twice a week; a quarter were disturbed daily or nearly daily; roughly half were only bothered outside, the other half were also bothered inside; and a third or less of those annoyed report physical/health effects including sleep disruption (Cummings, 2010).

Community noise studies have shown that public annoyance increases substantially when there is a noise source with unpredictable variability and usual sounds. The USEPA’s 1974 “Levels Document” (EPA, 1974) presents a community reaction prediction methodology, which includes annoyance correction factors for seasonal operation, background sound level, and prior experience with the noise and tone. Utilizing this methodology, correction factors would be applied to the measured Ldn, including 0 dB for summer or year-round operation, +10 dB for quiet suburban or rural community, +5 dB for no prior experience with the intruding noise, and +5 dB for having a tonal or impulsive sound character (EPA, 1974 - Table D-7). The graph showing normalized EPA community reactions is shown in Figure 3.10-2.

This graph includes the results of independent wind turbine annoyance research by Pedersen and Waye in 2004 (Pedersen and Waye, 2004). Figure 3.10-2 clearly shows that there is a predictable adverse community response for wind turbine noise levels above 32 dBA (Ambrose and Rand, 2010).

Wind turbine noise levels below 35 dBA may be audible, but will result in community reactions ranging from "no reaction, although noise is generally noticeable" to "sporadic complaints"; whereas from 35-45 dBA, there is a predicted adverse community response ranging from "widespread complaints or single threat of legal action" to "severe threats of legal action or strong appeals to local officials to stop the noise" (Ambrose and Rand, 2010). Similarly, the Pedersen and Waye 2004 data predicts 6 to 85 percent of the community will be highly annoyed, with the associated adverse health effects of "psychological distress, stress, difficulties to fall asleep and sleep interruption." Wind turbine noise levels higher than 45 dBA will result in the highest negative community response of "vigorous community action". The Pedersen and Waye 2004 data predicts "100 percent of the community highly annoyed from wind turbine noise" with the associated adverse health effects already noted. To account for the noise level variability and tonal sound content in wind turbine noise, a limit of 35 dBA would be consistent with the EPA noise level prediction for no more than "sporadic complaints" and, the Pedersen and Waye prediction for community reaction would be reduced to just above the "high annoyance threshold for wind turbine noise" (Ambrose and Rand, 2010).

Figure 3.10-2. Percent of Community Highly Annoyed by Wind Turbine Noise



In general, the current understanding of wind turbine noise is that the vast majority of wind farm noise issues occur within a half-mile (sometimes more), although even in this area, half to two-thirds of residents are either totally or usually unbothered (Cummings, 2010). However, in especially quiet rural areas with residents located within a half-mile or so, noise issues often become more than rare exceptions, and fairly often affect a third to half of this nearby population (Cummings, 2010). Very few noise issues occur beyond three-quarters of a mile (Cummings, 2010).

General Information on Vibration

Vibration is a phenomenon related to noise, where common sources include trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operating heavy earth-moving equipment (FTA, 2006). Vibration is an oscillatory motion through a solid medium, in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration.

The groundborne energy of vibration has the potential to cause structural damage and annoyance; it can be felt outdoors, but the perceived intensity of vibration effects are much greater indoors due to the shaking of structures. Several land uses are sensitive to vibrations, and include hospitals, libraries, residential areas, schools, and churches; in particular, vibration-sensitive uses include research and manufacturing where vibration-sensitive equipment is used (e.g., electron microscopes and high resolution lithographic equipment), concert halls, TV recording studios, theaters, as well as cultural and historic resources. For residential uses, the background vibration velocity level is usually 50 VdB or lower, which is well below the 65 VdB threshold of perception for humans (FTA, 2006). Although the perceptibility threshold is 65 VdB, human response to vibration is not usually significant unless the vibration exceeds 70 VdB (FTA, 2006). Rapid transit or light rail systems typically generate vibration levels of 70 VdB or more near their tracks; however, buses and trucks rarely create vibration that exceeds 70 VdB unless there are bumps in the road (FTA, 2006). If there is unusually rough road or track, wheel flats, geologic conditions that promote efficient propagation of vibration, or vehicles with very stiff suspension systems, the vibration levels from any source can be 10 decibels higher than typical (FTA, 2006). Typically, groundborne vibration generated by heavy equipment or traffic on rough roads attenuates rapidly with distance from the source of the vibration so that potential impact areas are usually confined within short distances (i.e., 200 feet or less) from the source (FTA, 2006).

3.10.1.1 Regional Setting

The proposed OWEF would be located in the Imperial Valley in southwestern Imperial County north, west, and south of the unincorporated community of Ocotillo (see Figure 1-1 in Appendix A). Noise sources in the general project area include the new Sunrise Powerlink transmission line, which bisects the project site, as well as several major roadways that traverse the project site (between Site 1 and Site 2), including Imperial Highway (County Highway S2), Interstate 8 (I-8), and State Route 98 (SR-98) (see Figure 2.1-7 in Appendix A). The Evan Hewes Highway is located immediately east of the project site. Emory Ranch Airport (private) is located approximately 0.25 mile from the boundary of Site 1 (northwestern site) of the project. In addition, Special Use Airspace (SUA) and ground ranges consisting of over 241 square nautical miles of restricted airspace is located northeast of the project site.

3.10.1.2 Project Setting

The proposed OWEF would be located on approximately 12,500 acres separated into two smaller sites bisected by the I-8. The northwestern site (Site 1) would be comprised of 11,300 acres generally north of I-8 and the southeastern site (Site 2) would be comprised of 1,200 acres south of I-8. Of the approximate 12,500 acres, 26 acres are private lands leased by the Applicant. Current and historical uses of the site include off-road recreational vehicle activities, hunting, hiking, camping, and use as range land.

Sensitive Receptors. One residence is located within the project boundary on the private lands leased by the Applicant; this residence is not considered a sensitive receptor as they have accepted the construction and operation of the project as part of the agreement in leasing their lands to the Applicant. As such, the nearest sensitive receptors to the proposed OWEF site are located immediately south of the northeastern portion of the project site in the unincorporated community of Ocotillo; and east of the southeastern portion of the project site in the Nomirage development. The closest residence to the project site is location L1 shown on Figure 3.10-3 (provided in Appendix A), and is located approximately 2,640 feet (0.5 miles) from the closest proposed wind turbine and on-site road (located northwest of L1). The Ocotillo Community Park (Figure 3.10-3, location L2), is the closest sensitive receptor to County-owned lands to be developed as part of the project. The park's property line is located approximately 2,960 feet (0.56 miles) from the nearest wind turbine. Other sensitive areas in proximity to the project site include the Jacumba Wilderness Area, which is located approximately 2,400 feet (0.45 miles) south of the nearest proposed wind turbine, and the Anza-Borrego State Park, which is approximately 1,760 feet (0.33 miles) west of the nearest turbine.

Existing Ambient Noise Conditions. The OWEF site is located in a rural environment, which is used for dispersed recreation and grazing with clusters of rural residences, namely in Ocotillo and the Nomirage development. Noise levels would occasionally be elevated due to aircraft over flights associated with the Emory Ranch Airport and the R-2510 complex operations (US Naval Reservation), as well as traffic along the local roadways (Imperial Highway, I-8, Evans Hewes Highway, and SR-98), and off-highway vehicle (OHV) use.

Short-term ambient noise measurements were taken on January 6 and 7, 2011. The noise measurement locations, denoted as N2 through N6, are shown on Figure 3.10-3 and are described as follows:

(1) N1: Residence at 1380 Shell Canyon Road (closest receptor to project boundary)

(2) N2: Ocotillo Community Park along Imperial Highway

(3) N3: Just north of residence at 1119 Via de Anza, just north of Evan Hewes Highway

(4) N4: Residence located at 175 E SR-98

(5) N5: Approximately 100 feet south of residence located on Clark Lane, just south of SR-98

(6) N6: Second to last residence on Imperial Place east of Imperial Highway

Table 3.10-1 summarizes the ambient noise measurements at these six locations.

Table 3.10-1. Summary of Ambient Noise Levels					
Measurement Location	20-Minute Measurements, dBA			Time of Measurement	Noted Noise Sources
	Leq	Lmax	Lmin		
N1: Residence at 1380 Shell Canyon Road	40.8	54.8	33.5	1/6/2011 4:05 to 4:25 p.m.	None
N2: Ocotillo Community Park along Imperial Highway	52.4	72.8	33.8	1/6/2011 4:30 to 4:50 p.m.	4 vehicles passed by; 4 vehicles pulled into the parking lot.
N3: Just north of residence at 1119 Via de Anza	47.1	61.1	35.6	1/7/2011 9:17 to 9:37 a.m.	1 vehicle drove by and stopped approx. 500 feet away; dogs barking; 1 vehicle drove by twice at a very slow speed.
N4: Residence at 175 E SR-98	67.7	86.0	35.7	1/6/2011 3:27 to 3:47 p.m.	32 vehicles passed along State Highway 98.
N5: Clark Lane just south of residence, south of SR-98	48.5	65.6	35.2	1/7/2011 10:20 to 10:40 a.m.	1 vehicle passed by on Clark Lane.
N6: Near second to last residence on Imperial Place east of Imperial Highway	45.5	60.3	35.2	1/7/2011 9:49 to 10:09 a.m.	7 vehicles passed by on Imperial Place.

Source: Aspen, 2011.

The Imperial County Noise Element (Table 3) lists the interstate and state highways in Imperial County, and shows the vehicle volumes, mixes and calculated noise levels. Traffic volumes are from the Circulation/Scenic Highway Element; vehicle mixes are from Caltrans 1990 data. Those road segments which would have the potential to be impacted by the OWEF are presented in Table 3.10-2.

Table 3.10-2. Imperial County Interstate and State Highway Traffic and Noise Data									
Road Segment	Traffic					Reference CNEL dB	Distance to ___ dB (feet)		
	Volume (x 10^3)	Speed (mph)	Vehicle Mix (%)				70 dB	65 dB	60 dB
			Auto	Medium	Heavy				
Existing Conditions (1990)									
I-8 w/o Ocotillo	10.7	65	84	4.8	11.2	76	180	565	1605
I-8 e/o Ocotillo	8.6	65	84	4.8	11.2	75	145	455	1355
I-8 e/o SR-98	8.7	65	80	4.4	15.6	75	170	530	1505
SR-98 e/o Ocotillo	1.8	55	89	4.6	6.4	65	*	55	175
SR-98 w/o I-8	0.9	55	77	2.3	20.7	65	*	50	160
Future/Year 2015 Conditions									
I-8 w/o Ocotillo	26.1	65	84	4.8	11.2	79	440	1300	2600
I-8 e/o Ocotillo	18.3	65	84	4.8	11.2	78	310	970	2150
I-8 e/o SR-98	13.9	65	80	4.4	15.6	77	275	865	2010
SR-98 e/o Ocotillo	6.1	55	89	4.6	6.4	71	59	187	590
SR-98 w/o I-8	1.1	55	77	2.3	20.7	66	*	61	193

Source: Imperial County, 1993 – Tables 3 and 4. e/o = east of; w/o = west of.
Notes:
(1) Contour lies within the ROW indicated by an "*".
(2) All calculations assume flat hard terrain with no obstructions; actual conditions

As discussed in Section 3.17 (Transportation and Public Access), existing average daily traffic (ADT) volume counts were completed by LLG Engineers on December 7, 2010, for specific street segments within the project area. Because project construction would not commence until 2012 and to account for potential cumulative project traffic increases that may occur between 2010 (existing) and that time, a five percent growth factor was applied to all existing 2010 traffic volumes. Baseline traffic volumes in the study area are presented in Table 3.10-3 along with the calculated ambient noise levels (see Appendix H for detailed calculations).

Table 3.10-3. Existing Traffic-Generated Noise Levels

Road Segment	Speed	Existing (2010) ADT	Construction (2012) ADT	Existing Noise Level, CNEL, 50 feet from road centerline
W. Evan Hewes Highway, East of Imperial Highway	55 mph	250	260	58 dBA
Imperial Highway, I-8 EB Ramps to SR-98 Yuha Cutoff	55 mph	240	250	60 dBA
SR-98 Yuha Cutoff, West of Imperial Highway	55 mph	1,140	1,200	67 dBA

Source: LLG Engineers, 2010 – see Appendix H.

As shown in Table 3.10-1, sampled background noise levels in the project area range from approximately 41 to 68 dBA Leq during daytime hours. For those measurements located away from the major highways, including Evan Hewes Highway and SR-98 (N1, N2, and N6), the noise levels would range from approximately 41 dBA to 53 dBA Leq; along the highways (N3, N4, and N5) noise levels are noticeably higher, ranging from 47 to 68 dBA Leq, which is in line with the calculated roadway noise levels presented in Table 3.10-3. Nighttime noise levels away from the highways would be expected to be approximately 30 dBA, which is typical for a rural environment (BLM, 2005). However, for those residences located near or adjacent to the I-8, Evan Hewes Highway, or SR-98, noise levels would be substantially higher, as shown in Table 3.10-3. In addition, corona noise, which sounds like crackling or hissing, can be heard at levels of approximately 50 dBA along the existing Southwest Powerlink transmission line (OE, 2010).

3.10.2 Applicable Regulations, Plans, and Standards

Regulating environmental noise is generally the responsibility of local governments. The U.S. Environmental Protection Agency (EPA), however, has published guidelines on recommended maximum noise levels to protect public health and welfare, and the State of California maintains recommendations for local jurisdictions in the General Plan Guidelines published by the Governor's Office of Planning and Research. The following summarizes the federal and State recommendations and local requirements.

3.10.2.1 Federal

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. §651 et seq.), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) adopted regulations (29 CFR §1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list limits on noise exposure levels as a function of the amount of time during which the worker is exposed, as shown in Table 3.10-4. The regulations further specify requirements for a hearing conservation program (§1910.95(c)), a monitoring program (§1910.95(d)), an audiometric testing program (§1910.95(g)), and hearing protection (§1910.95(i)). There are no federal laws governing community noise.

Although no federal noise regulations exist, the EPA has promulgated noise guidelines (EPA, 1974). The EPA guideline recommends an Ldn of 55 dBA to protect the public from the effect of broadband environmental noise outdoors in residential areas and farms, and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use (EPA, 1974). However, using the assumption that the noise is of broadband character can lead to errors of 5 to 10 dB by which the risk of the sound exposure is underestimated (EPA, 1974). This could lead to greater possible errors if a substantial portion of the exposure is to noise with intense pure tone components, such as those generated by wind turbines.

California Desert Conservation Area Plan

The California Desert Conservation Area (CDCA) Plan (BLM, 1980) contains provisions for public land-use management in the California Desert District under the BLM's jurisdiction. Since its first date of publication in 1980, the CDCA Plan has been amended in order to incorporate public concerns and congressional mandates in regard to the use of desert resources, such as the provisions of the California Desert Protection Act of 1994.

In particular, noise-related guidelines established in the CDCA Plan include long-term monitoring of effects of vehicle noise on wildlife (Chapter 3, Wildlife Element) and implementation of land use compatibility standards with limited (vehicle use) areas in order to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands (Chapter 3, Motorized-Vehicle Access Element). The CDCA Plan also identifies energy and utility corridors and power plant sites within the California Desert District (Chapter 3, Energy Production and Utility Corridors Element).

Table 3.10-4. OSHA-Permissible Noise Exposure Standards

Duration of Noise (hours/day)	A-Weighted Noise Level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

Source: EPA, 1974. 29 CFR §1910.95, Table G-16

3.10.2.2 State

California Government Code §65302 encourages each local government entity to implement a noise element as part of its general plan. In addition, the California Governor's Office of Planning and Research has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. These recommendations have been incorporated into the Imperial County Noise Element (see below).

The California Occupational Safety and Health Administration has promulgated Occupational Noise Exposure Regulations (California Code of Regulations, Title 8, Section 5095-5099) that set employee noise exposure limits. These standards are equivalent to the Federal OSHA standards.

3.10.2.3 Imperial County

County General Plan

The Noise Element of the Imperial County General Plan provides a program for incorporating noise issues into the land use and planning process, with a goal of minimizing adverse noise impacts to sensitive noise receptors. The Noise Element establishes goals, objectives and procedures to protect the public from noise intrusion. The Noise Element is applicable to lands owned or zoned by the County. Lands regulated by the State or federal government, such as the BLM lands which comprise the majority of the OWEF site, are not subject to local land use policy (Imperial County, 1993).

The Noise Element of the Imperial County General plan defines sensitive receptors as areas of habitation where the intrusion of noise has the potential to adversely affect the occupancy, use or enjoyment of the environment. Sensitive receptors include residences, schools, hospitals, parks, office buildings, as well as non-human species, such as riparian bird species which are sensitive to excessive noise.

Section IV, Part B, defines the Noise Impact Zones, which are areas that are likely to be exposed to noise greater than 60 dB CNEL or 75 dB Leq (1-hour). The purpose of the Noise Impact Zone is to define areas and properties where an acoustical analysis of a proposed project is required to demonstrate compliance with the land use compatibility requirements and other applicable noise standards. Any property located within the distances denoted below to the identified noise source would be defined as being in a Noise Impact Zone (Imperial County, 1993):

- Interstate – 1,500 feet from centerline
- State Highway or Prime Arterial – 1,100 feet from centerline
- Major Arterial – 750 feet from centerline
- Secondary Arterial – 450 feet from centerline
- Collector Street – 150 feet from centerline
- Railroad – 750 feet from centerline
- Farmland in an agricultural zone – 0.25 mile (1,320 feet)

The Imperial County General Plan Noise Element, Section IV(C), provides the land use compatibility guidelines, as shown in Table 3.10-5. These guidelines provide the criteria for environmental impact findings and conditions of project approval. These guidelines are similar to the recommendations established by the Office of Planning and Research (OPR).

The Imperial County General Plan Noise Element, Section IV(C)(2) provides property line noise limits, as shown in Table 3.10-6, that apply to noise generation from one property to an adjacent property, where the adjacent or receiving property is a sensitive receptor. In the absence of a sensitive receptor, an exception or variance to the standards may be appropriate. These standards do not apply to construction noise.

Table 3.10-5. Guidelines for Land Use Compatibility

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE – Ldn or CNEL (dB)													
	50		55		60		65		70		75		80	
Residential	▥	▥	▥	▥	▥									
						▨	▨	▨	▨					
										▤	▤			
												■	■	■
Transient Lodging - Motels, Hotels	▥	▥	▥	▥	▥									
						▨	▨	▨	▨	▨	▨			
												▤	▤	
														■
Schools, Libraries, Churches, Hospitals, Nursing Homes	▥	▥	▥	▥	▥									
						▨	▨	▨	▨					
										▤	▤	▤	▤	
														■
Auditorium, Concert Hall, Amphitheaters														
	▨	▨	▨	▨	▨	▨	▨	▨	▨					
										■	■	■	■	■
Sports Arena, Outdoor Spectator Sports														
	▨	▨	▨	▨	▨	▨	▨	▨	▨					
										▤	▤			
												■	■	■
Playgrounds, Neighborhood Parks	▥	▥	▥	▥	▥	▥	▥	▥	▥					
										▤	▤			
												■	■	■
Golf Courses, Riding Stables, Water Recreation, Cemeteries	▥	▥	▥	▥	▥	▥	▥	▥	▥					
										▤	▤	▤	▤	
														■
Office Buildings, Business Commercial and Professional	▥	▥	▥	▥	▥	▥	▥							
								▨	▨	▨	▨			
												▤	▤	
														■
Industrial, Manufacturing, Utilities, Agriculture	▥	▥	▥	▥	▥	▥	▥	▥	▥					
										▨	▨			
												▤	▤	
														■

▥	**Normally Acceptable.** Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
▨	**Conditionally Acceptable.** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.
▤	**Normally Unacceptable.** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
■	**Clearly Unacceptable.** New construction or development should generally not be undertaken.

Source: Imperial County, 1993. Table 7 – Noise/Land Use Compatibility Guidelines.

Table 3.10-6. Property Line Noise Limits

Zone	Time	Applicable Limit One-hour Average Sound Levels (dB)
Residential (R-1)	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Multi-residential (R-2, R-3, R-4, and all other residential)	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
Commercial	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
Light Industrial/Industrial Park (manufacturing, all other industrial, including agricultural and extraction)	Anytime	70
General Industrial	Anytime	75

Source: Imperial County, 1993, Table 9; Imperial County, 1998.

Note: When the noise-generating property and the receiving/adjacent property have different uses, the more restrictive standard shall apply. When the ambient noise level is equal to or exceeds the Property Line noise standard, the increase of the existing or proposed noise shall not exceed 3 dB Leq.

The Imperial County General Plan Noise Element, Section IV(C)(3), provides the following construction noise standards to reduce the potential for noise impacts (Imperial County, 1993):

- Construction noise from a single piece of equipment or a combination of equipment shall not exceed 75 dB Leq, when averaged over an eight-hour period and measured at the nearest sensitive receptor. This standard assumes a construction period, relative to an individual sensitive receptor, of days or weeks.
- In cases of extended length construction times, the above standard may be tightened so as not to exceed 75 dB Leq when averaged over a one-hour period.
- Construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays.

The Imperial County General Plan Noise Element, Section IV(C)(4) provides limits on the increase of noise levels compared to ambient noise levels. The Noise/Land Use Compatibility Guidelines (see Table 3.10-5, above) are not intended to allow the increase of ambient noise levels up to the maximum without consideration of feasible noise reduction measures. The following are guidelines for the evaluation of significant noise impacts (Imperial County, 1993):

- If the future noise level with implementation of the project will be within the "normally acceptable" noise levels shown in Table 3.10-5, above, but will result in an increase of 5 dB CNEL or greater, the project will have a potentially significant noise impact and mitigation measures must be considered.
- If the future noise level with implementation of the project will be greater than "normally acceptable" noise levels shown in Table 3.10-5, above, a noise increase of 3 dB CNEL or greater shall be considered a potentially significant noise impact and mitigation measures must be considered.

County Ordinances

Noise generating sources in Imperial County are regulated under the County of Imperial Codified Ordinances, Title 9, Division 7, Noise Abatement and Control. Noise limits are provided in Chapter 2

§90702.00 of this ordinance, and are the same as those established in the County's General Plan, as identified in Table 3.10-6, above (Imperial County, 1998). In addition, Chapter 2 §90702.01, Motor Vehicles, states that it is unlawful to operate any motor vehicle of any type on any site, other than a public street or highway as defined in the California Vehicle Code, in any manner so as to cause noise in excess of the noise levels permitted for on-highway motor vehicles (Imperial County, 1998).

3.11 Paleontological Resources

Paleontological resources, or fossils, are the remains of extinct organisms, and provide the only direct evidence of ancient life. They are considered to be non-renewable resources because they cannot be replaced once they are destroyed. The Federal Land Policy and Management Act of 1976 (FLPMA) mandates the treatment of paleontological resources as a scientific value (FLPMA section 102[8]). For the purpose of this analysis, and in accordance with existing BLM policy, scientifically significant paleontological resources are defined as vertebrate fossils that are identifiable to taxon and/or element, noteworthy occurrences of invertebrate and plant fossils, and vertebrate trackways. In general, surface disturbing actions have the potential to cause adverse effects on surface and subsurface paleontological resources in rock units and overlying sediments known to contain them. Direct impacts include destruction due to breakage and fragmentation. Indirect impacts may result from increased accessibility to paleontological resources resulting in an increased likelihood of looting or vandalism. Cumulative impacts are incremental effects and constitute the long-term loss to society as whole of the scientific information that would have been available if surface disturbing actions in the general vicinity of the project area had not taken place.

The project area is located in Imperial County, California, close to the intersection of Interstate 8 and State Route 98 and the town of Ocotillo, approximately one mile south of the Coyote Mountains, and five miles north of the international border. It encompasses approximately 12,500 acres of BLM-administered lands and includes an additional 26 acres of private land.

3.11.1 Environmental Setting

This EIS/EIR section is based on data obtained from two paleontological resource technical reports. The first report (Aron and Kelly, 2010) is a programmatic paleontological sensitivity assessment of the OWEF area that includes a review of published scientific literature, geologic maps and museum records, and involved consultation with professional paleontologists who are familiar with the general area. Based on the data obtained during the assessment, the geologic formations within the project area were ranked using the Potential Fossil Yield Classification System (PFYC) (BLM IM 2008-009), and these rankings received BLM concurrence. The PFYC system is meant to provide baseline guidance for predicting, assessing, and mitigating paleontological resources. Using the PFYC system, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential (Class 1-5). This classification is applied to the geologic formation, member, or other distinguishable unit, preferably at the most detailed mappable level. The PFYC rankings for the geologic formations within the Project area were used to delineate locations that would be included in a pedestrian field survey (Aron and Kelly, 2010). The second report presents the results of the paleontological field survey (Aron and Kelly, 2011).

According to published geologic mapping (Dibblee, 2008a-d), seven geologic formations of sedimentary origin and one geologic formation of intrusive igneous origin occur within the project area. The intrusive igneous unit consists of undifferentiated plutonic crystalline basement rocks including late Triassic to Jurassic dark gray biotite rich quartz diorite to diorite. Sedimentary units include the middle Miocene Split Mountain Formation, the middle Miocene Alverson Formation, the late Miocene and Pliocene Latrania Formation of the Imperial Group, the Plio-Pleistocene Palm Spring Formation, Quaternary (Pleistocene)

Older Alluvium, Quaternary (Holocene) Alluvium, and Quaternary (Holocene) Terrace Alluvium. Intrusive igneous rocks are formed deep under the earth's surface at high temperatures and pressures, and do not contain fossils. Therefore, they are considered to have very low paleontologic potential (PFYC Class 1). Holocene sedimentary deposits such as alluvium and terrace alluvium are considered to have low paleontological potential (PFYC Class 2) because they are too young to contain in-situ fossils, although these deposits may grade downward into older sediments that may contain them. The sedimentary facies [1] of the Alverson Formation (as opposed to the extrusive igneous facies) and Older Alluvium have produced scattered vertebrate fossil remains (mostly terrestrial mammals, but also wood and mollusks), and have moderate paleontologic potential (PFYC Class 3a). The Split Mountain Formation is sparsely fossiliferous and has unknown paleontologic potential (PFYC Class 3b). The Palm Spring Formation produces locally abundant and diverse terrestrial vertebrate fossil remains (mammals, birds, reptiles), and is considered to have very high paleontologic potential (PFYC Class 5). The mostly marine Latrania Formation of the Imperial Group has produced locally abundant and diverse marine vertebrates and invertebrates and sparse terrestrial mammals, and like the Palm Spring Formation, has very high paleontologic potential (PFYC Class 5).

Based on the records of the San Diego Natural History Museum (SDNHM), Anza-Borrego Desert State Park Desert District Stout Research Center (ABDSP-DSRC), and the Natural History Museum of Los Angeles County (LACM), no previously recorded fossil localities occur within the project area, although ten previously recorded fossil localities occur immediately adjacent to the project area, and numerous other localities have been documented in the same geologic units at other locations in the Imperial Valley.

The paleontological assessment report (Aron and Kelly, 2010) recommended all areas mapped as undifferentiated plutonic crystalline basement rocks (PFYC Class 1) and Quaternary Alluvium and Quaternary Terrace Alluvium (PFYC Class 2) for immediate paleontological clearance because these deposits have little potential for producing in-situ fossils. These deposits were estimated to comprise approximately 11,361 acres of the total study area. Areas mapped as Alverson Formation, Latrania Formation (Imperial Group), Split Mountain Formation, Palm Spring Formation, and Older Alluvium, have a moderate or unknown (PFYC Class 3) to very high potential (PFYC Class 5) for producing scientifically important fossil remains, and were recommended for a 100 percent pre-construction pedestrian inventory focused on areas with good exposures of fossil-bearing bedrock and surficial deposits. Based on the geologic map, these deposits comprise approximately 3,640 acres of the project area. However, it was determined in the field that the areal extent of paleontologically sensitive geologic formations within the project area is significantly greater than that shown on the published geologic maps cited above. This type of geologic mapping imprecision is not uncommon since many geologic maps are prepared using aerial photography with limited field checking. The additional paleontologically sensitive acreage was included in the pedestrian field survey.

A paleontological field survey was completed in December 2010 and January 2011. Fifty six quarter-quarter sections (2,240 acres) that include exposed rocks of the Alverson Formation, Split Mountain Formation, Latrania Formation, Palm Spring Formation, and Pleistocene older alluvium were surveyed. The survey was designed as a block survey of all areas that could contain scientifically important surface fossils, so that adjustments to the locations of proposed project facilities within the project area will not result in the need for additional paleontological surveys. Block paleontological surveys involve systematic inspections of all outcrops of paleontologically sensitive bedrock and surficial sediments.

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[1] Sedimentary facies are bodies of sediment recognizably different from adjacent sediment which has been deposited in a different manner.

Thirty six fossil localities were documented during the field survey. These include four localities in the Mio-Pliocene Latrania Formation consisting of fossil marine invertebrates, and 32 fossil localities in the Plio-Pleistocene Palm Spring Formation consisting of fossil vertebrates. Thirty three of the vertebrate and marine invertebrate fossil localities that were documented did not preserve scientifically important fossils. Three fossil localities that preserved scientifically significant vertebrate fossils were initially documented and then collected following BLM consultation. These fossils include specimens consisting of turtle carapace (upper section of the shell) and plastron (underside of shell) fragments and limb elements; camelid [2] post-crania (all or part of the skeleton apart from the skull) including a distal 1st phalanx (bones that form fingers and toes) of the extinct llama (cf. *Hemiauchenia* sp.), a lumbar vertebral centrum (lower spine) of the extinct camel (cf. *Camelops* sp.); and unidentified mammal bones collected from the Palm Spring Formation (written communication, G. Jefferson, ABDSP-DSRC, 2011). These fossils have been prepared, identified, and have been transferred to ABDSP-DSRC for permanent museum storage. Occurrences of well-preserved fossil wood were found to be widespread throughout the Palm Spring Formation within the project area, and as a result, none of these fossil localities were documented, collected or recommended for avoidance. Deposits of Pleistocene older alluvium, although widespread, were found to be devoid of fossils, and it is recommended that these be downgraded to PFYC Class 2 within the project area for future resource management purposes (although they were designated PFYC Class 3a at the time of this analysis). Two areas of Palm Spring Formation within the greater project area were identified during the field survey as having relatively high densities of vertebrate fossils on the ground surface. Based on the project design plans, these areas are not anticipated to be impacted by project construction, but it is recommended that they be avoided by future surface disturbing actions in order to preserve the fossils in their native geologic context.

3.11.2 Applicable Regulations, Plans, and Standards

3.11.1.1 Federal

The management and preservation of paleontological resources on public lands are governed under various laws, regulations, and standards. For the past several decades, the BLM has used the Federal Land Management and Policy Act (FLPMA, 1976) as the legislative foundation for its paleontological resource management policies. The BLM has also developed general procedural guidelines (Manual H-8720-1; Instructional Memorandum [IM] 2008-009; IM 2009-011) for the management of paleontological resources (BLM, 2007, 2008). Paleontological resource management objectives include the evaluation, management, protection and location of fossils on BLM managed lands. Management policy also includes measures to ensure that proposed land-use projects do not inadvertently damage or destroy scientifically significant paleontological resources.

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[2] Camelids are large even-toed ungulates (hoofed animals) with slender necks and long legs, and are strictly herbivorous; they are classified in the order Artiodactyla, along with pigs, peccaries, hippopotamuses, camels, deer, giraffe, cattle, goats, antelope and many others.

The implementation of paleontological mitigation measures designed in compliance with the following federal and state laws and the BLM guidelines cited above would reduce adverse impacts on scientifically significant paleontological resources to a less than significant level by preventing the destruction of significant fossils during project-related surface disturbance.

The National Environmental Policy Act of 1969, as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258 § 4(b), Sept. 13, 1982). Recognizes the continuing responsibility of the Federal Government to "preserve important historic, cultural, and natural aspects of our national heritage . . ." (Sec. 101 [42 USC § 4321]) (#382).

Federal Land Management and Policy Act of 1976 (43 U.S.C. 1712[c], 1732[b]); sec. 2, Federal Land Management and Policy Act of 1962 [30 U.S.C. 611]; Subpart 3631.0 et seq.), Federal Register Vol. 47, No. 159, 1982. Defines significant fossils as: unique, rare or particularly well-preserved; an unusual assemblage of common fossils; being of high scientific interest; or providing important new data concerning [1] evolutionary trends, [2] development of biological communities, [3] interaction between or among organisms, [4] unusual or spectacular circumstances in the history of life, [5] or anatomical structure.

Paleontological Resources Preservation, Omnibus Public Lands Act, Public Law 111-011, Title VI, Subtitle D (OPLA-PRP, 2009). This legislation directs the Secretaries (Interior and Agriculture) to manage and protect paleontological resources on federal land using "scientific principles and expertise." OPLA-PRP incorporates most of the recommendations of the report of the Secretary of the Interior entitled Assessment of Fossil Management on Federal and Indian Lands (2000) in order to formulate a consistent paleontological resources management framework. In passing the OPLA-PRP, Congress officially recognized the scientific importance of paleontological resources on some federal lands by declaring that fossils from these lands are federal property that must be preserved and protected. The OPLA-PRP codifies existing policies of the BLM, National Park Service, USDA Forest Service, Bureau of Reclamation, and U.S. Fish and Wildlife Service, and provides the following:

- Uniform criminal and civil penalties for illegal sale and transport, and theft and vandalism of fossils from federal lands
- Uniform minimum requirements for paleontological resource-use permit issuance (terms, conditions, and qualifications of applicants)
- Uniform definitions for "paleontological resources" and "casual collecting"
- Uniform requirements for curation of federal fossils in approved repositories

Federal legislative protections for scientifically significant fossils applies to projects that take place on federal lands (with certain exceptions such as DOD), involve federal funding, require a federal permit, or involve crossing state lines. Because the vast majority of the proposed project area occurs on BLM managed lands, federal protections for paleontological resources apply under NEPA, FLPMA, and OPLA-PRP.

3.11.1.1 State and Local Regulations and Laws

The procedures, types of activities, persons, and public agencies required to comply with CEQA are defined in: Guidelines for the Implementation of CEQA, as amended March 29, 1999 (Title 14, Chapter 3, California Code of Regulations: 15000 et seq.). One of the questions listed in the CEQA

Environmental Checklist (Section 15023, Appendix G, Section XIV, Part A) is: "Will the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?"

The State of California Public Resources Code (Chapter 1.7), Section 5097.5 and 30244, includes additional State level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on State lands, define the removal of paleontological "sites" or "features" from State lands as a misdemeanor, and prohibit the removal of any paleontological "site" or "feature" from State land without permission of the applicable jurisdictional agency. These protections apply only to State of California land, and thus apply only to portions of the proposed OWEF, if any, that occur on State land.

No other State or local laws and regulations are applicable to the proposed project, including none in the Imperial County General Plan.

[illegible]

The State of California Public Resources Code (Chapter 1.7, Section 5097.5 and 30244) includes additional State level requirements for the assessment and management of paleontological resources. [illegible] California land, and thus apply only to portions of the proposed [illegible]

[illegible] Land Management and Policy Act of [illegible] (43 U.S.C. [illegible]) [illegible] Federal Register Vol. 47, No. 159, 1982. Defines significant fossils as: unique, rare or particularly well-preserved; an unusual assemblage of common fossils; being of high scientific interest; or providing important new data concerning (1) evolutionary trends, (2) development of biological communities, (3) interaction between or among organisms, (4) unusual or spectacular circumstances in the history of life, (5) or anatomical structure.

Paleontological Resources Preservation, Omnibus Public Lands Act, Public Law 111-011, Title VI, Subtitle D (OPLA-PRP, 2009). This legislation directs the Secretaries of Interior and Agriculture to manage and protect paleontological resources on federal land using "scientific principles and expertise." OPLA-PRP incorporates most of the recommendations of the report of the Secretary of the Interior entitled Assessment of Fossil Management on Federal and Indian Lands (2000) in order to formulate a consistent paleontological resources management framework. In passing the OPLA-PRP, Congress officially recognized the scientific importance of paleontological resources on some federal lands by declaring that fossils from these lands are federal property that must be preserved and protected. The OPLA-PRP codifies existing policies of the BLM, National Park Service, USDA Forest Service, Bureau of Reclamation, and U.S. Fish and Wildlife Service, and provides the following:

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Federal legislative protections for scientifically significant fossils applies to projects that take place on federal lands (with certain exceptions such as DOD), involve federal funding, require a federal permit, or involve crossing state lines. Because the vast majority of the proposed project area occurs on BLM managed lands, federal protections for paleontological resources apply under NEPA, FLPMA, and OPLA-PRP.

3.22.1.1 State and Local Regulations and Laws

The procedures, types of activities, persons, and public agencies required to comply with CEQA are defined in: Guidelines for the Implementation of CEQA, as amended March 18, 2010 (Title 14, Chapter 3, California Code of Regulations: 15000 et seq.). One of the questions listed in the CEQA

3.12 Public Health and Safety

The following discussion addresses existing environmental conditions in the affected area of the proposed OWEF site, and describes existing laws and regulations relevant to public health and safety. The affected environment for public health and safety includes evaluation of several program areas, including aircraft operations, hazardous materials, seismic hazards, and public health. The study area is the proposed OWEF site as defined in Figure 2.3-1.

3.12.1 Environmental Setting

3.12.1.1 Aircraft Operations

The proposed OWEF site is not located within two miles of a public airport. The closest public airport is the Jacumba Airport, located approximately 7.1 miles southwest of the proposed OWEF site. However, the Emory Ranch private airport is located approximately 0.2 mile south of the northeast portion of the proposed OWEF site and approximately 2 miles northwest of the community of Ocotillo. The airport is currently operating with one runway, Runway 04/22, with dimensions of 2,400 feet in length and 40 feet in width (SkyVector, 2011). After consulting with aviation and airspace consultants, the Applicant eliminated certain turbine locations to preserve a buffer for airplane operations at the Emory Ranch private airport. The Applicant also consulted with the owner of the Emory Ranch private airport to discuss these buffer zones at each end of the runway, and reached agreement with the owner regarding same.

Additionally, the proposed OWEF would be located approximately five miles southwest of Naval Reservation Target 103, which is identified as a live bombing area. The U.S. Navy, Department of Defense (DOD) Airspace Consultation Area would be located immediately north of the proposed OWEF site. Wind turbines located on the northern portion of the proposed OWEF site would underlie a low-level military training route which has a lower altitude or "floor" of 200 feet above ground level. Therefore, wind turbines would encroach into the route and could affect military training conducted along the route. Pursuant to a Memorandum of Understanding between the DoD and BLM regarding wind energy development on BLM-administered lands, consultations occurred among the BLM, the Applicant, and various DoD and Department of Homeland Security agencies. The result of such consultation was issuance of a letter from DoD with two mitigation requests: (i) that all wind turbines within the area 1.5 nautical miles south of the centerline of the Airspace Consultation Area are less than 400 feet tall at the maximum blade tip height, and (ii) that aviation lighting be of a type that is not incompatible with night-vision goggles sometimes used by military pilots (DOD, 2010). The Federal Aviation Administration (FAA) requires a notice of proposed construction for a project so that it can determine whether it would adversely affect commercial, military, or personal air navigation safety. The FAA issued Determinations of No Hazard for 244 wind turbines at the site, based on the maximum number of turbines initially contemplated for the project. Applications for the revised 155 turbine layout received FAA approval on December 9, 2011.

Hazards to flight also include visual and electronic forms of interference with the safety of aircraft operations. Land use development that may cause an increase in the level of attraction to birds is also considered a hazard. Other potential hazards to aviation for wind energy projects located in sufficient proximity to airports include potential electromagnetic interference from the power plant and transmission lines.

3.12.1.2 Seismic Hazards

Geologic hazards are normally associated with issues such as seismicity (ground shaking), slope instability, subsidence, and expansive soils. Seismic hazards related to ground shaking include ground rupture, slope instability, liquefaction, seismic compaction, tsunamis, and seiches. A discussion of the affected environment of the proposed OWEF regarding geologic hazards, including earthquakes and seismic activity is included in Section 3.15.1 (Soil Resources).

3.12.1.3 Hazardous Materials

Several factors associated with the area in which a project is to be located affect the potential for an accidental release of a hazardous material that could cause public health impacts. These include:

- local meteorology;
- terrain characteristics;
- location of population centers and sensitive receptors relative to the project;
- existing public health concerns; and
- existing environmental site contamination.

Meteorological Conditions

Meteorological conditions, including wind speed, wind direction, and air temperature, affect both the extent to which accidentally released hazardous materials would be dispersed into the air and the direction in which they would be transported. This affects the potential magnitude and extent of public exposure to such materials, as well as exposure to associated health risks. When wind speeds are low and the atmosphere stable, dispersion is reduced but could lead to increased localized public exposure.

Based on historic weather data from El Centro, average summer (June-September) high and low temperatures in the study area range from 107°F to 68°F, respectively. Average winter (December-March) high and low temperatures in the study area range from 79°F to 41°F. The project site area is characterized by predominant and strong winds from the southwest and west southwest with average hourly wind speeds of 9.4 miles per hour and 10.4 miles per hour from each direction, respectively. Recorded wind speeds and ambient air temperatures are described in Section 3.2, Air Resources.

Terrain Characteristics

The location of elevated terrain is often an important factor in assessing potential exposure. An emission plume resulting from an accidental release could impact high elevations before impacting lower elevations. The topography of the proposed OWEF site indicates a dip trend from the east to the northeast (ranges between approximately 1,650 above sea level at the southwest edge of the OWEF site and 550 feet above sea level at the northeast edge of the OWEF site). The OWEF site is bordered to the west and south by the Inkopah and Jacumba Mountains, to the north by the Coyote Mountains, and to the east by the Imperial Valley and Yuha Desert.

Location of Exposed Populations and Sensitive Receptors

The general population includes many sensitive subgroups that could be at greater risk from exposure to emitted pollutants. These sensitive subgroups include the very young, the elderly, and those with existing illnesses. In addition, the location of the population in the area surrounding a project site may have a major bearing on health risk.

One residence is located within the project boundary on the private land leased by the Applicant; this residence is not considered a sensitive receptor as the residents have accepted the construction and operation of the project as part of the agreement in leasing their land to the Applicant (Hamilton, 2011). As such, the nearest sensitive receptors to the proposed OWEF site are located immediately south of the northeastern portion of the project site in the unincorporated community of Ocotillo; and east of the southeastern portion of the project site in the No Mirage development. The closest residence to the project site is located approximately 2,640 feet (0.5 mile) from the closest proposed wind turbine and on-site road. The Ocotillo Community Park (Figure 3.10-2), is the closest sensitive receptor to County-owned lands to be developed as part of the project. The park's property line is located approximately 2,960 feet (0.56 mile) from the nearest wind turbine. Other sensitive areas in proximity to the project site include the Jacumba Wilderness Area, which is located approximately 2,400 feet south of the nearest proposed wind turbine.

Existing Environmental Site Contamination

According to the Department of Toxic Substances Control (DTSC) Hazardous Waste and Substances site "Cortese" list, no hazardous waste facilities subject to corrective action are located on the proposed OWEF site (DTSC, 2011). Additionally, results of an Environmental Data Resources Report prepared on February 4, 2011, showed that the project site was not located in any of the environmental database searches and that no properties of environmental concern were located within 1 mile of the project site (EDR, 2011). A Phase 1 Environmental Site Assessment is currently under preparation and will be completed prior to project construction.

Pesticide Use

Pesticides are substances that are used to control living organisms that cause damage or economic loss, or transmit or produce disease. Pests include insects, fungi, weeds, rodents, nematodes, algae, viruses, or bacteria. Pesticides include herbicides, fungicides, insecticides, rodenticides, and disinfectants, as well as insect growth regulators. In California, adjuvants (substances added to enhance the efficacy of a pesticide) are also subject to the regulations that control pesticides. The amount of pesticides applied in Imperial County has decreased significantly overall in the past seven years, even while accounting for fewer acres harvested. In 1999, 8,647,468 pounds were applied in the County, compared to 4,820,543 pounds in 2006. Imperial County's pesticide use has gone from 7th in the state in 1999 to 11th in the state in 2006.

From 1997 to 2006, there were 13 cases of reported exposures to pesticides in Imperial County that were classified as definite, meaning there was a high degree of correlation between the pattern of exposure and the resulting symptoms exhibited, requiring both medical evidence and physical evidence of exposure. During that same period, there were 72 probable cases, which indicated a relatively high degree of correlation evident, but medical or physical evidence was inconclusive or unavailable; and 29 possible cases, which had some degree of correlation evident but both medical and physical evidence were inconclusive or unavailable.

No evidence of prior or current pesticide use was located as part of a records search for the proposed OWEF site (EDR, 2011).

Abandoned Mined Lands

Abandoned mines and openings are discussed in Section 3.8 (Mineral Resources) of this EIS/EIR.

Unexploded Ordnance (UXO)

No evidence of UXO or any type of military trash has been identified by EIS/EIR preparers or the Applicant during project site visits. Additionally, no evidence has been discovered to show that military operations have previously occurred on the project site.

3.12.1.4 Emergency Response

Although the turbines contain relatively few flammable components, the presence of electrical generating equipment and electrical cables, along with various oils (lubricating, cooling, and hydraulic) creates the potential for fire or a medical emergency within the tower or the nacelle. Storage and use of these substances may occur at the project substation, in electrical transmission structures, staging area(s), and the operation and maintenance (O&M) building/facility. A comprehensive Fire Management Plan will be prepared prior to construction.

The Imperial County Sheriff's Department is the primary law enforcement agency in Imperial County. The Sheriff's Department includes 11 divisions, including Communications, Crime Prevention, Civil, Fiscal, Information Systems, South County Investigations, North County Investigations, Records, Off Highway Vehicle Enforcement Safety Team., Explorers, and Scientific Investigations Unit (ICSO, 2009). The California Highway Patrol provides traffic service for the unincorporated areas of Imperial County (CHP, 2010). There are six fire stations within the county (ICFD, 2011). Imperial County has two hospitals (El Centro Regional Medical center and Pioneers Memorial Hospital) that provide acute care, rehabilitation facilities, an emergency department, and a variety of clinics and private physicians (ICFD, 2011).

3.12.1.5 Public Health

Existing Public Health Concerns

The current public health status of residents of rural Imperial County is evaluated as it relates to environmental health factors that could be potentially affected by the Proposed Action and alternatives. Vector-borne disease incidence as well as potential issues related to shadow flicker and electro-magnetic fields (EMF) are presented in this section. Information related to air quality is presented in Section 3.2. Specific information on sensitive receptors in the community of Ocotillo is not available. Most of the information in this section was obtained from the 2008 Imperial County Health Status Report, the latest year for which the report is available.

Vector-borne diseases include infectious diseases that are transmitted to humans by vectors such as mosquitoes, ticks, fleas, lice, or rodents. The purpose of vector control is to decrease contact between humans and vectors through education, surveillance, and integrated pest management strategies.

Surveillance is conducted primarily for the three most prevalent mosquito-borne viruses in California: West Nile virus (WNV), St. Louis Encephalitis (SLE), and Western Equine Encephalomyelitis (WEE) as discussed in additional detail below.

Mosquito-Borne Diseases

Mosquitoes are known to be the carriers of many serious diseases. The mosquito genus *Anopheles* carries the parasite that causes malaria, which is the leading cause of premature Western equine encephalitis (WEE), which occurs in the U.S. where they cause disease in humans, horses, and some bird species. WEE is regarded as one of the most serious mosquito-borne diseases in the U.S. due to their high mortality rates.

According to the Centers for Disease Control and Prevention (CDC), the SLE virus is transmitted to humans by the bite of an infected mosquito. Most cases of SLE have occurred in eastern and central states. Most persons infected with SLE have no apparent illness. Initial symptoms of those who become ill include fever, headache, nausea, vomiting, and tiredness. Severe neuro-invasive disease (often involving encephalitis, an inflammation of the brain) occurs more commonly in older adults. In rare cases, long-term disability or death can result. There is no specific treatment for SLE infection; care is based on symptoms (CDC, 2011). Both WEE and SLE have also been detected in mosquito pools or sentinel chicken flocks, although not consistently each year, during the last five years.

In 2003, Imperial County reported one of the first three indigenous human cases of WNV in California, in addition to being one of the three counties that detected WNV in mosquito pools and sentinel chicken flocks that year. WNV has been detected in either mosquito pools or sentinel chicken flocks every year since 2003. It is not known how long WNV has been in the U.S., but CDC scientists believe the virus has been in the eastern U.S. since the early summer of 1999, and possibly longer (CDC, 2008).

Rodents

The accumulation of organic waste presents the potential for significant populations of mice and rats. Rodents can spread or accelerate the spread of disease from contaminated areas to uncontaminated areas via their droppings, feet, fur, urine, saliva, or blood. In addition, mice provide a food source that could attract wild predatory animals (e.g., skunks, foxes, coyotes, and stray dogs), which could pose other disease problems.

Mice are generally nocturnal and secretive animals with keen senses of taste, hearing, smell, and touch. They are small enough to enter any opening larger than one quarter of an inch. Mice prefer cereal grains, if available, but will eat garbage, insects, meat, and even manure. Mice reproduce at high rates, making early control important in minimizing the potential for infestation. Although the life span of a mouse is only nine to twelve months, a female mouse can have five to ten litters per year with five or six young in each litter. Mice do not consume large quantities of food but can cause significant economic damage due to physical structure damage and site contamination.

Valley Fever

Coccidioidomycosis, commonly known as Valley Fever, is primarily a disease of the lungs that is common in the southwestern U.S. and northwestern Mexico. Valley Fever is caused by the fungus *Coccidioides immitis*, which grows in soils in areas of low rainfall, high summer temperatures, and moderate winter temperatures. These fungal spores become airborne when the soil is disturbed by winds, construction, farming, and other activities. In susceptible people and animals, infection occurs when a spore is inhaled. Valley Fever symptoms generally occur within 3 weeks of exposure. Valley Fever is not a contagious disease. Secondary infections are rare.

It is estimated that more than 4 million people live in areas where Valley Fever fungus is prevalent in the soils. According to the California Department of Public Health (CDPH), Imperial County has an incidence rate for Valley Fever of 0.1 to 5 cases for every 100,000 people, which is relatively low compared to the higher incidence rate in counties such as Kern County which has an incidence rate 15.1 to 183 cases per every 100,000 people (CDPH, 2009).

People working in certain occupations such as construction, agriculture, and archaeology have an increased risk of exposure and disease because these jobs result in the disturbance of soils where fungal spores are found. Valley Fever infection is highest in California from June to November. In addition, many domestic and native animals are susceptible to the disease, including dogs, horses, cattle, coyotes, rodents, bats, and snakes. Most Valley Fever cases are very mild. It is estimated that 60 percent or more of infected people either have no symptoms or experience flu-like symptoms and never seek medical attention.

Shadow Flicker

With the installation of wind turbine generators (WTGs) as part of the OWEF, the proposed project has the potential to result in a phenomenon known as “shadow flicker”. Shadow flicker is the alternating change in light intensity that occurs when rotating WTG blades cast moving shadows on the ground or on structures. It has been alledged that shadow flicker may have the potential to cause seizures in certain epileptic individuals. There is no valid scientific study that has shown a link between WTGs and seizures. The OWEF has been designed to avoid shadow flicker on sensitive receptors through a combination of careful siting of turbines in relation to residences, and the commitment to deploy Siemens technology which prevents blade rotation on individual turbines as needed to avoid causing shadow flicker on residences.

Wind Turbine Syndrome

Wind Turbine Syndrome (WTS) is a term that has been coined by Dr. Nina Pierpont. According to Pierpont, wind turbines associated with wind farms can cause illness in certain individuals due to the rotating blades which creates noise and vibration. Symptoms that are believed to result from WTS are: sleep disturbance, headache, Tinnitus (ringing in ears), ear pressure, dizziness, vertigo, nausea, visual blurring, tachycardia, irritability, problems with concentration and memory and panic episodes associated with sensations of internal pulsation or quivering, which arise while awake or asleep (Pierpoint, 2009). There is no known dose-response relationship between exposure to wind turbine noise/vibration and health effects. Pierpoint’s single clinical study reported a correlation between distance to large (1.5 to 3 MW) wind turbines and WTS, and suggested that symptoms are eliminated by siting wind turbines a minimum of 1.25 miles away from sensitive receptors. However, the small clinical case study does not support a dose-response relationship, and more research is needed to identify whether wind turbine noise and vibration may cause the reported symptoms.

Electromagnetic Fields

EMFs are associated with electromagnetic radiation, which is energy in the form of photons. Radiation energy spreads as it travels and has many natural and human-made sources. The electromagnetic spectrum, the scientific name given to radiation energy, includes light, radio waves, and x-rays, among other energy forms. Electric and magnetic fields are common throughout nature and are produced by all living organisms. Concern over EMF exposure, however, generally pertains to human-made sources of electromagnetism and the degree to which they may have adverse biological effects or interfere with other electromagnetic systems.

Commonly known human-made sources of EMF are electrical systems such as electronics, telecommunications, electric motors, and other electrically powered devices. Radiation from these sources is invisible, non-ionizing, and of low frequency. Generally, in most living environments, the level of such radiation plus background natural sources of EMF are low.

Electric voltage (electric field) and electric current (magnetic field) from transmission lines create EMFs. Power frequency EMF is a natural consequence of electrical circuits and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information.

Possible health effects associated with exposure to EMFs have been the subject of scientific investigation since the 1970s. Concern about EMF originally focused on electric fields; however, much of the recent research has focused on magnetic fields. Although the health effects of EMF are uncertain, field intensity, transients, harmonics, and changes in intensity over time are some of the EMF characteristics that may need to be considered to assess human exposure effects. These characteristics may vary from power lines to appliances to home wiring and so may create different types of exposures. The exposure most often considered is intensity or magnitude of the field. The OWEF's electric collection system cables will be buried underground to a depth of at least 3.5 feet. The proposed project's substation will be located adjacent to the Sunrise Powerlink, and remote from any residences.

Reviews of the scientific literature conducted by the National Institute of Environmental Health Sciences, the National Research Council/National Academy of Sciences, the International Agency for Research on Cancer (a division of the World Health Organization), and the American Cancer Society from the 1990s through 2001 have consistently indicated insufficient evidence of an association between EMF exposure and adverse health effects in humans. The National Institute of Environmental Health Sciences (1999) recognized published reports of associations between EMF and certain cancers, particularly leukemia, but noted the lack of supporting evidence in the literature from animal or mechanistic studies. The National Research Council/National Academy of Sciences (1999) corroborated the findings of the National Institute of Environmental Health Sciences and concluded that EMF does not pose an unrecognized health hazard. The World Health Organization evaluated the carcinogenic risk to humans from static and extremely low frequency EMF and concluded that there was limited evidence of carcinogenicity in humans and less-than-sufficient evidence for carcinogenicity in animals (World Health Organization, 2001). The American Cancer Society (1996) reviewed epidemiological studies of residential exposure to EMF and cancer and found little evidence to suggest an association between exposure and cancer.

Since 2001, further research concerning possible health effects associated with EMF has been consistent with earlier studies. For example, Feychting (2005) examined non-cancer effects—principally, adverse pregnancy outcomes—associated with EMF exposure and concluded that such studies have not indicated these effects. On January 15, 1991, the California Public Utilities Commission (CPUC) initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, called the California EMF Consensus Group, was created by the CPUC to advise it on this issue. The Consensus Group's fact-finding process was open to the public, and its report incorporated concerns expressed by the public. Its recommendations were filed with the CPUC in March 1992. Based on the work of the Consensus Group, written testimony, and evidentiary hearings, the CPUC issued its decision (93-11-013) on November 2, 1993 to address public concern about possible EMF health effects from electric utility facilities. The conclusions and findings included the following:

> We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure. We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value.

This continues to be the stance of the CPUC with regard to establishing standards for EMF exposure. Currently, the State has not adopted any specific limits or regulation on EMF levels related to electric power facilities.

3.12.1.6 Intentionally Destructive Acts

The number and high profile of international and domestic terrorist attacks during the last decade presents a new and realistic threat to the safety and security of the people of the U.S., infrastructure, and resources. There is a potential for intentional destructive acts, such as sabotage or terrorism events, to cause impacts to human health and the environment. As opposed to industrial hazards, collisions, and natural events, where it is possible to estimate event probabilities based on historical statistical data and information, it is not possible to accurately estimate the probability of an act of terrorism or sabotage. These risk events generally focus on the consequences of such events. In general, the consequences of a sabotage or terrorist attack on a wind facility would be expected to be similar to those discussed above in Sections 3.12.1.6.2 (Seismic Hazards) and 3.12.1.6.3 (Hazardous Materials) regarding accidental and natural events.

3.12.2 Applicable Regulations, Plans, and Standards

Applicable regulations, plans, and standards regarding seismic hazards are included in Section 3.15.2 (Soil Resources) of this EIS/EIR.

3.12.2.1 Federal

Comprehensive Environmental Response and Liability Act (CERCLA). Superfund Amendments and Reauthorization Act (SARA) of 1986 (42 USC Section 9601 et seq.)

The SARA amends CERCLA and governs hazardous substances. The applicable part of SARA for the proposed OWEF is Title III, otherwise known as the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA). Title III requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous substances present at facilities in local communities. The law provides primarily for planning, reporting, and notification concerning hazardous substances. Key sections of the law are:

- **Section 302** — Requires one time notification when extremely hazardous substances (EHSs) are present in excess of their threshold planning quantities (TPQs). EHSs and their TPQs are found in Appendices A and B to 40 Code of Federal Regulations (CFR) Part 355.
- **Section 304** — Requires immediate notification to the local emergency planning committee (LEPC) and the state emergency response commission (SERC) when a hazardous material is released in excess of its reportable quantity (RQ). If a CERCLA-listed hazardous substance RQ is released, notification must also be given to the National Response Center in Washington, D.C. (RQs are listed in 40 CFR Part 302, Table 302.4). These notifications are in addition to notifications given to the local emergency response team or fire personnel.
- **Section 311** — Requires that either material safety data sheets (MSDSs) for all hazardous materials or a list of all hazardous materials be submitted to the SERC, LEPC, and local fire department.

Clean Air Act (CAA) (42 USC 7401 et seq. as amended)

Regulations under the CAA are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store a Threshold Quantity (TQ) or greater of listed regulated substances to develop a Risk Management Plan (RMP), including hazard assessments and response programs to prevent accidental releases of listed chemicals.

Clean Water Act (CWA) (40 CFR 112)

The Spill Prevention, Control, and Countermeasures (SPCC) program under the CWA is designed to prevent or contain the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Regulations under the CWA require facilities to prepare a written SPCC Plan if they store oil and its release would pose a threat to navigable waters.

Toxic Substances Control Act (15 USC 2605)/Resource Conservation and Recovery Act (RCRA) (42 U.S. Code [USC] 6901 et seq.)/Hazardous and Solid Waste Act (HSWA)

The Federal Toxic Substances Control Act (1976) and the RCRA of 1976 established a program administered by the U.S. Environmental Protection Agency (EPA) for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA was amended in 1984 by the HSWA, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes.

U.S. Department of Transportation (DOT). Hazardous Materials Transport Act (49 USC 5101)

The U.S. DOT, in conjunction with the EPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 directs the U.S. DOT to establish criteria and regulations regarding the safe storage and transportation of hazardous materials. Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials.

Federal Aviation Administration (FAA), 49 CFR Part 77.13

The FAA regulates aviation at regional, public, private, and military airports. The FAA regulates objects affecting navigable airspace and structures taller than 200 feet. The U.S. and California Departments of Transportation also require the applicant to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration. According to 49 CFR Part 77.17, notification allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing any adverse impacts on the safe and efficient use of navigable airspace. Any structure that would constitute a hazard to air navigation, as defined in FAA Part 77, requires issuance of a permit from the California Department of Transportation's Aeronautics Program. The permit is not required if the FAA aeronautical study determines that the structure has no impact on air navigation.

Occupational Safety and Health Administration (OSHA), Title 29 CFR 1910

The OSHA's mission is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. The OSHA staff establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs.

3.12.2.2 State

Health and Safety Code, Section 25249.5 et seq.

Safe Drinking Water and Toxics Enforcement Act, Proposition 65. This law identifies chemicals that cause cancer and reproductive toxicity, provides information for the public, and prevents discharge of the chemicals into sources of drinking water. Lists of the chemicals of concern are published and updated periodically. The Act is administered by California's Office of Environmental Health Hazard Assessment.

Health and Safety Code, Section 25270

Aboveground Petroleum Storage Act. Health and Safety Code Sections 25270 to 25270.13 ensure compliance with the federal CWA. The law applies to facilities that operate a petroleum AST with a capacity greater than 660 gallons or combined ASTs capacity greater than 1,320 gallons or oil-filled equipment where there is a reasonable possibility that the tank(s) or equipment may discharge oil in "harmful quantities" into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare a SPCC plan.

Health and Safety Code, Section 25500 et seq.

This code and the related regulations in 19 California Code of Regulations (CCR) 2620, et seq., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a Hazardous Materials Business Plan (HMBP) to their local Certified Unified Program Agency (CUPA) and to report releases to their CUPA and the State Office of Emergency Services.

Health and Safety Code, Section 25531 et seq.

This code and the California Accidental Release Program (CalARP) regulate the registration and handling of regulated substances. Regulated substances are any chemicals designated as an extremely hazardous substance by the U.S. Environmental Protection Agency (USEPA) as part of its implementation of Superfund Amendments and Reauthorization Act (SARA) Title III. Health and Safety Code Section 25531 overlaps or duplicates some of the requirements of SARA and the CAA. Facilities handling or storing regulated substances at or above TPQs must register with their local CUPA and prepare a Risk Management Plan (RMP).

Health and Safety Code, Section 41700

This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

CCR Title 8, Section 5189

Process Safety Management of Acutely Hazardous Materials. Requires facility owners to develop and implement effective safety management plans to ensure that large quantities of hazardous materials are handled safely. While these requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act (HWCA)

The HWCA created the State hazardous waste management program, which is similar to but more stringent than the federal RCRA program. The act is implemented by regulations contained in Title 26 of the CCR, which describes the following required aspects for the proper management of hazardous waste:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the HWCA and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the California Department of Toxic Substances and Control (DTSC).

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)

This program requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a CUPA. The Program Elements consolidated under the Unified Program are:

- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (a.k.a., Tiered Permitting),
- Aboveground Petroleum Storage Tank SPCC,
- Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or "Community-Right-To-Know"),
- Cal ARP,
- Underground Storage Tank (UST) Program, and
- Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA.

California Environmental Protection Agency (Cal/EPA)

The Cal/EPA was created in 1991, which unified California's environmental authority in a single cabinet-level agency and brought the Air Resources Board (ARB), State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCBs), Integrated Waste Management Board (IWMB), DTSC, Office of Environmental Health Hazard Assessment (OEHHA), and Department of Pesticide Regulation (DPR) under one agency. These agencies were placed within the Cal/EPA "umbrella" for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Their mission is to restore, protect and enhance the environment, to ensure public health, environmental quality, and economic vitality.

Department of Toxic Substance Control (DTSC)

The DTSC is a department of Cal/EPA and is the primary agency in California that regulates hazardous waste, cleans-up existing contamination, and looks for ways to reduce the hazardous waste produced in California. The DTSC regulates hazardous waste in California primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Government Code §65962.5 (commonly referred to as the Cortese List) includes the DTSC listed hazardous waste facilities and sites, Department of Health Services (DHS) lists of contaminated drinking water wells, sites listed by the SWRCB as having underground storage tank leaks and which have had a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

California Office of Emergency Services (OES)

In order to protect the public health and safety and the environment, the California OES is responsible for establishing and managing Statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to be available to firefighters, public safety officers, and regulatory agencies needs to be included in business plans in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code Article 1–Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2–Hazardous Materials Management (Sections 25531 to 25543.3).

CCR Title 19, Public Safety, Division 2, OES, Chapter 4–Hazardous Material Release Reporting, Inventory, And Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum Statewide standards for Hazardous Materials Business Plans (HMBPs). These plans shall include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the State. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance,
- 55 gallons of a liquid,
- 200 cubic feet of compressed gas,
- A hazardous compressed gas in any amount, and
- Hazardous waste in any quantity.

California Occupational Safety and Health Administration (Cal/OSHA)

Cal/OSHA is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

California Highway Patrol (CHP)

A valid Hazardous Materials Transportation License, issued by the CHP, is required by the laws and regulations of State of California Vehicle Code Section 3200.5 for transportation of either:

- Hazardous materials shipments for which the display of placards is required by State regulations; or
- Hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the State Vehicle Code. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (Title 14, CCR, Chapter 6, Article 1, Sections 1150-1152.10). Inhalation hazards face similar, more restrictive rules and regulations (Title 13, CCR, Chapter 6, Article 2.5, Sections 1157-1157.8). Radioactive materials are restricted to specific safe routes for transportation of such materials.

California Public Utilities (CPUC) General Order (GO) 95: Rules for Overhead Electric Line Construction

GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. It was adopted in 1941 and updated most recently in 2006. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements. The latter, governed by rule 35, and inspection requirements, governed by Rule 31.2 are summarized here.

GO 95: Rule 35, Tree Trimming, defines minimum vegetation clearances around power lines. Rule 35 guidelines require 10-foot radial clearances for any conductor of a line operating at 110,000 Volts or more, but less than 300,000 Volts. This requirement would apply to the proposed 230-kV lines.

GO 95: Rule 31.2, Inspection of Lines, requires that lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition as not to create a hazard.

Public Resources Code (PRC) 4292, Powerline Hazard Reduction

PRC 4292 requires a 10-foot clearance of any tree branches or ground vegetation from around the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of PRC 4296. Proposed project structures would be primarily exempt due to their design specifications.

PRC 4293, Powerline Clearance Required

PRC 4293 presents guidelines for line clearance including a minimum of 10 feet of vegetation clearance from any conductor operating at 110,000 volts or higher.

CCR Title 14, Section 1254

CCR 14 Section 1254 presents guidelines for minimum clearance requirements on non-exempt utility poles. The proposed project structures would be primarily exempted from the clearance requirements with the exception of cable poles and dead-end structures.

As shown in Figure 4.8-1 of CCR 14 Section 1254, the firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of 14, CCR, 1255 or PRC 4296. The radius of the cylindroid is 3.1 m (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level – remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will propagate fire

- From 0 to 2.4 m (0 to 8 feet) above ground level remove flammable trash, debris or other materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 m (8 feet).
- From 2.4 m (8 feet) to horizontal plane of highest point of conductor attachment remove dead, diseased or dying limbs and foliage from living sound trees and any dead, diseased or dying trees in their entirety.

3.12.2.3 Local

Imperial County General Plan

Seismic and Public Safety Element

Land Use Planning and Public Safety

Goal 1: Include public health and safety considerations in land use planning.

- ***Objective 1.1*** Ensure that data on geological hazards is incorporated into the land use review process, and future development process.
- ***Objective 1.4*** Require, where possessing the authority, that avoidable seismic risks be avoided; and that measures, commensurate with risks, be taken to reduce injury, loss of life, destruction of property, and disruption of service.
- ***Objective 1.6*** Ensure environmental hazards are considered when siting critical facilities.
- ***Objective 1.7*** Require developers to provide information related to geologic and seismic hazards when siting a proposed project.
- ***Objective 1.9*** Encourage the reclamation of lands where mining, irrigation, landfills, solid waste, hazardous materials/waste storage or disposal, and natural soil erosion has occurred, so as to pose no danger to public health and safety.

Emergency Preparedness

Goal 2: Minimize potential hazards to public health, safety, and welfare and prevent the loss of life and damage to health and property resulting from both natural and human-related phenomena.

- ***Objective 2.1*** Ensure the adequacy of existing emergency preparedness and evacuation plans to deal with identified hazards and potential emergencies.
- ***Objective 2.2*** Reduce risk and damage due to seismic hazards by appropriate regulation.
- ***Objective 2.4*** Support and assist in informing the public and other agencies of the hazards and risks of earthquakes and of techniques to employ to reduce those hazards.
- ***Objective 2.5*** Minimize injury, loss of life, and damage to property by implementing all state codes where applicable.
- ***Objective 2.6*** Maintain, utilize, and provide geologic and seismic information as furnished by the State Geologist as required.
- ***Objective 2.8*** Prevent and reduce death, injuries, property damage, and economic and social dislocation resulting from natural hazards including flooding, land subsidence, earthquakes, other

geologic phenomena, levee or dam failure, urban and wildland fires and building collapse by appropriate planning and emergency measures.

- *Objective 2.9* Reduce vehicle accidents through appropriate standards.

Control Hazardous Materials

Goal 3: Protect the public from exposure to hazardous materials and wastes.

- *Objective 3.1* Discourage the transporting of hazardous materials/waste near or through residential areas and critical facilities.
- *Objective 3.2* Minimize the possibility of hazardous materials/waste spills.
- *Objective 3.3* Discourage incompatible development adjacent to sites and facilities for the production, storage, disposal, and transport of hazardous materials/waste as identified in the County General Plan and other regulations.
- *Objective 3.4* Adopt and implement ordinances, policies, and guidelines that assure the safety of County ground and surface waters from toxic or hazardous materials and wastes.

Programs and Policies

Seismic/Geologic Hazards

1. Implement codified ordinances and procedures which require the review and restriction of land use due to possible natural hazards.
2. Monitor, evaluate, and analyze existing seismic and geological data as it pertains to Imperial County to determine future regulations and programs.
3. Implement the geologic hazards section of the County's Codified Ordinances pursuant to the requirements of the Alquist - Priolo Geologic Hazards Zone Act.
4. Ensure that no structure for human occupancy, other than one-story wood frame structures, shall be permitted within fifty feet of an active fault trace as designated on maps compiled by the State Geologist under the Alquist - Priolo Geologist Hazards Zone Act.
5. The County should require suppliers of all existing utilities which cross active faults to file with the County an operation plan describing the probable effects of failures at the fault and the various emergency facilities and procedures which exist to assure that failure does not threaten public safety.
6. Ensure that proposed highway construction which falls within an Alquist - Priolo Act Special Studies Zone shall be reviewed to ensure that grade-separated interchange structures are not located on or near an active fault.
7. Periodically update maps of existing faults, slide areas, and other geographically unstable areas in the unincorporated area of the County.
8. Support the safety awareness efforts of the Office of Emergency Services of Imperial County and other agencies through public information and educational activities.

9. Continue to implement the Alquist - Priolo requirements in designated special study zones in the Imperial County Ordinance.

Agricultural Element

Irrigation Runoff and Environmental Issues

Goal 5: Improve the quality of irrigation water runoff and reduce the extensive use of pesticides and other chemicals to minimize impacts to downstream water bodies, wetland habitats, and the overall environment.

- *Objective 5.5* Encourage uses of naturally occurring biological control; alternate plant species or varieties that resist pests; pesticides with a lower toxicity to humans or nontarget organisms; and irrigation, cultivation, and fertilizing practices that reduce pest problems.
- *Objective 5.6* Use broad spectrum pesticides only as a last resort when careful monitoring indicates they are needed according to pre-established guidelines. When treatments are necessary, the least toxic and most target-specific pesticides should be chosen.
- *Objective 5.7* The Agricultural Commissioner's Office shall continue to ensure that applicators of farm chemicals are educated regarding current pesticides and other chemicals, their hazards, and applications.

Imperial County Office of Emergency Services (OES)

The Imperial County Fire Department (ICFD) serves as the local OES in Imperial County. The OES Coordinator is the County Fire Chief, who is assisted by an Assistant OES Coordinator, maintains the OES program for the County of Imperial. ICFD acts as the lead agency for the Imperial County Operational Area (OA) and provides leadership in all phases of developing the emergency management organization, including public education, training, Emergency Operations Center operations, interagency coordination, and plan development.

Imperial County Public Health Department

Emergency Medical Services Agency (EMS)

The EMS Agency of the Imperial County Public Health Department plans, implements, and evaluates the EMS system in Imperial County. The EMS system incorporates ambulance companies, hospitals, fire departments, police departments and other public and private providers into an integrated and coordinated system of services.

Vector Control District

The Vector Control District is part of the Imperial County Public Health Department. The Vector Control District detects and reduces the spread of mosquito-borne disease through surveillance and abatement activities.

Agricultural Commissioners Office

The Agricultural Commissioners Office is also under the Imperial County Public Health Department. The Agricultural Commissioners Office deals with permitting and monitoring of pesticide use to ensure legal and safe use of products. They also deal with investigation of illnesses, environmental damage, and property damage caused by pesticides.

3.13 Recreation

The following discussion addresses existing recreational resources within the project area, and describes existing laws and regulations relevant to those resources. The affected environment for this analysis describes "baseline" conditions, or existing environmental conditions that contribute to recreational resources at the time of publishing the Draft EIS/EIR. For the purposes of this analysis, the recreation study area has been defined as the area within 16 miles of the proposed OWEF site. Additional recreation resources that are outside of the 16 mile radius but which have national, regional, or local significance are also included in this analysis. This is an appropriate study area for recreation because it captures all major recreation resources (refer to Table 3.13-1 below) that contribute to baseline conditions and could potentially be affected by activities related to the proposed OWEF.

3.13.1 Environmental Setting

3.13.1.1 Recreation Resources on the Project Site

The proposed OWEP would be located on 12,500 acres of open desert land in Imperial County that is currently used for recreation activities. Based on a site visit in May 2010, recreation activities include camping, off-highway vehicle (OHV) use, and shooting. The majority of the project site is within the Multiple-Use Class (MUC), Limited Use (L), under the BLM's CDCA Plan. This classification allows for low to moderate recreation activities, including non-competitive vehicle touring and events on approved routes of travel (BLM, 1980). In addition, the Western Colorado Desert Routes of Travel Designations (WECO) is an amendment to the BLM's CDCA Plan. There are approximately 27 open routes of travel designated by WECO within the project site (BLM, 2002). A map of the open routes designated by this plan is included in Appendix A, Figure 3.13-1.

3.13.1.2 Recreation Resources Surrounding the Project Site

Ocotillo Community Park is administered by the County and is located south and east of the project site on Imperial Highway. The park includes a community center, picnic tables, a playground, a basketball court, and horseshoe pits. In addition, the BLM administers wilderness areas, campgrounds, long term visitor areas (LTVAs), trails, interpretive sites, and an extensive network of backcountry approved travel and OHV routes in the vicinity of the site. Areas of critical environmental concern (ACECs) and wilderness also provide dispersed recreation opportunities in the region. Local residents and long-term winter visitors make up the majority of the recreational users. These areas are identified in Table 3.13-1 (beginning with the area closest to the site), and are discussed below. A map of the regional recreation resources is also included in Appendix A, Figure 3.13-2.

Wilderness Areas

Wilderness areas surrounding the proposed OWEF site are major attractions for recreation activities including hiking and camping, and biological resources are also an attraction for nature observation. The wilderness areas closest to the project site are the Jacumba Mountains Wilderness and the Coyote Mountains Wilderness. The Jacumba Mountains Wilderness is 31,358 acres and is generally bounded by I-8 to the north and the California-Mexico border to the south (BLM, 2010a). The Coyote Mountains Wilderness is 18,631 acres and offers recreational activities, such as hiking, camping, and sightseeing

(BLM, 2010b). This area is designated as Peninsular Bighorn Sheep Critical Habitat, and is notable for private lands and recreational activities including camping and hunting (BLM, 2002).

Table 3.13-1. Regional Recreation and Open Areas

Recreation Area	Jurisdiction/ Administration	Approximate Distance from the Proposed Project	Approximate Acreage	Allowed Uses
Jacumba Mountains Wilderness (BLM, 2010a)	BLM	The southern boundary of OWEF Site 2 abuts this recreation area	31,358	Camping, hunting, fishing, trapping, horseback riding
Ocotillo Community Park	Imperial County	0.6 mile from the closest wind turbine	< 1	Community center, picnic tables, a basketball court, horseshoe pits, playground
Anza-Borrego Desert State Park (CSP, 2005)	California State Parks	Adjacent to west end of project boundary	+600,000	Camping, hiking, natural exhibits
Coyote Mountains Wilderness/Fossil Site ACEC (BLM, 2010b)	BLM	1.5 miles north of the northern project boundary	18,631	Camping, hunting, fishing, trapping, horseback riding
Yuha Basin ACEC(BLM, 2002)	BLM	1.5 miles east and southeast	+175,000	On-route OHV (off-route OHV is prohibited), limited camping
Table Mountain ACEC (BLM, 2011d)	BLM	5 miles southwest	Information not available	Information not available
Carrizo Gorge Wilderness Area (BLM, 2011a)	BLM	6 miles west	14,740	Camping, hunting, fishing
In-Ko-Pah Mountains ACEC (BLM, 2011e)	BLM	6.5 miles west	21,500	Information not available
Plaster City Open Area (BLM, 2010d)	BLM	6.5 miles east	41,000	OHV, camping
Fish Creek Mountains Wilderness Area (BLM, 2011b)	BLM	8.5 miles north	21,390	Camping, hunting, fishing
Juan Bautista de Anza National Historic Trail	National Park Service	4 miles east	1,200-mile trail	Auto tour, hiking, biking, historical resources, special events
McCain Valley Resource Conservation Area/Lark Canyon OHV Area and Campground (BLM, 2010e)	BLM	10 miles west	38,692	OHV, camping, hunting, hiking, horseback riding
West Mesa ACEC (BLM, 2002)	BLM	11 miles northeast	20,295	OHV, camping, hunting, hiking, horseback riding
Sawtooth Mountains Wilderness Area (BLM, 2011c)	BLM	12 miles northwest	33,612	Camping, hunting, fishing
Cleveland National Forest	USDA Forest Service	15 miles west	460,000	Camping, hunting, hiking, OHV, shooting, fishing, mountain biking, bird-watching
Superstition Mountain OHV Open Area (BLM, 2010f)	BLM	16 miles northeast	13,000	OHV, camping

The Wilderness Act limits allowable types of recreation on wilderness lands to those that are primitive and unconfined, are dependent on a wilderness setting, and do not degrade the wilderness character of the area. Motorized or mechanized vehicles or equipment are not permitted in wilderness. The BLM regulates such recreation on wilderness lands within its jurisdiction in accordance with the policies, procedures, and technologies set forth in the Code of Federal Regulations (43 CFR 6300), BLM 1983 Manual 8560 (Management of Designated Wilderness Areas), BLM 1988 Handbook H-8560-1 (Management of Designated Wilderness Areas), and BLM's 1995 Principles For Wilderness Management In The California Desert. More specifically, camping, hiking, rockhounding, hunting, fishing, non-commercial trapping, backpacking, climbing, and horseback riding are permissible (BLM, 1988). By contrast, physical endurance contests (such as races, competitive trail rides and survival contests), commercial recreational activities, and the use of motorized or mechanized vehicles (including OHVs, aircraft and motor boats) generally are prohibited (16 USC 1133(c); BLM, 1988).

Long Term Visitor Areas

The BLM manages seven LTVAs: five are in California and two are in Arizona. LTVAs accommodate visitors who wish to camp for as long as seven consecutive months. Of the three LTVAs located within southern Imperial County, the Hot Springs LTVA is the closest which is approximately 40 miles east of the proposed OWEF site. In addition to long-term camping, recreational opportunities at LTVAs include hiking; OHV use; rockhounding; viewing cultural sites, wildlife, and desert scenery; and solitude.

Areas of Critical Environmental Concern

As shown in Figure 3.13-2, the Yuha Basin ACEC, Table Mountain ACEC, Coyote Mountains Fossil Site ACEC, In-Ko-Pah Mountains ACEC, and West Mesa ACEC are in the vicinity of the proposed OWEF site. The Yuha Basin ACEC contains several unique attractions including the Juan Bautista de Anza National Historic Trail (Anza Trail); geoglyphs, which are drawings or designs on the ground created by Native Americans; an area of rare crucifixion thorns; oyster shell beds; and the Yuha Well (BLM, 2010c). Within the Coyote Mountains Wilderness, the Coyote Mountains Fossil Site ACEC consists of unusual sandstone rock formations believed to be about six million years old (BLM, 2010b). The West Mesa ACEC primarily protects cultural and biological resources.

Recreational activities allowed in ACECs are determined by the resources and values for which the ACECs were established, and by the associated ACEC Management Plan. Most ACECs allow low-intensity recreation use that is compatible with protection of the relevant values.

3.13.2 Applicable Regulations, Plans, and Standards

3.13.2.1 Federal

The OWEF would be located almost entirely on BLM-administered lands in the Imperial Valley. The following is a discussion of the federal plans and policies that would be applicable to the project site.

Federal Land Policy and Management Act of 1976

Establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. In particular, the FLPMA's relevance to the proposed project is that Title V, Section 501, establishes BLM's authority to grant ROWs for generation, transmission, and distribution of electrical energy. Under FLPMA, the BLM is responsible for the development of energy resources on BLM-administered lands in a manner that balances diverse resource uses and that takes into account the long-term needs of future generations for renewable and non-renewable resources. Among those use, FLPMA recognizes that the public lands be managed in a manner which will provide for outdoor recreation.

California Desert Conservation Area Plan

The 25 million-acre CDCA Plan Area contains over 12 million acres of public lands spread within the area known as the California Desert, which includes the following three deserts: the Mojave, the Sonoran, and a small portion of the Great Basin. Approximately 10 million acres of the CDCA public lands are administered by the BLM.

The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA, and it is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The plan's goals and actions for each resource are established in its 12 elements. Each of the plan elements provides both a desert-wide perspective of the planning decisions for one major resource or issue of public concern as well as more specific interpretation of multiple-use class guidelines for a given resource and its associated activities.

The CDCA Plan defines MUCs for BLM-managed lands in the CDCA, which includes the land area encompassing the proposed project location.

Western Colorado Desert Routes of Travel Designations (WECO)

As an amendment to the CDCA Plan, the WECO Plan modifies previous route designations and existing routes in approximately 475,000 acres and approximately 2,320 miles of off-road vehicle limited areas within Imperial County. The purpose of the WECO Plan is to designate routes of travel as open, limited or closed on land that is managed by the BLM. The goal of this project is to support the recreational and general access uses of BLM managed land while conserving cultural and natural resources. A reasonable network of routes currently exists that is able to provide general access and recreational opportunities to the public. Approximately 27 designated OHV routes would be directly or indirectly affected by the Proposed Action.

3.13.2.2 State

There are no state regulations that are applicable to recreational resources within the project site.

3.13.2.3 Local

Ocotillo/Nomirage Community Area Plan

The Ocotillo/Nomirage Community Area Plan designates the proposed distribution and general location and extent of the uses of land for housing, business, industry, open space, including natural resources, recreation and enjoyment of scenic beauty, education, public buildings and grounds, solid waste disposal facilities and other categories of public and private uses of land.

Imperial County General Plan, Conservation and Open Space Element (Imperial County 2006a)

The Conservation and Open Space Element identifies goals and policies to insure the managed use of environmental resources. The goals and policies are also designed to prevent limiting the range of resources available to future generations.

The purpose of the Conservation and Open Space Element is to:

- promote the protection, maintenance, and use the county's natural resources with particular emphasis on scarce resources and resources that require special control and management;
- prevent the wasteful exploitation, destruction, and neglect of the State's natural resources;
- recognize that natural resources must be maintained for their ecological value as well as for the direct benefit to the public; and
- protect open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety.

Applicable goals and objectives set forth in the Conservation and Open Space Element are as follows:

Preservation of Open Space

Goal 10: Open space shall be maintained to protect the aesthetic character of the region, protect natural resources, provide recreational opportunities, and minimize hazards to human activity.

Objective 10.1 Confine future urbanization within adopted Sphere of Influence areas.

Objective 10.2 Recognize the regional significance of the development and conservation of recreational opportunities in Imperial County.

Objective 10.9 Conserve desert lands, within the county's jurisdiction for wildlife protection, recreation, and aesthetic purposes.

3.14 Social and Economic Setting

This section describes the social and economic background and existing conditions of areas in the vicinity of the proposed OWEF. As shown in Figure 1-1, the proposed OWEF site is located in close proximity to the unincorporated community of Ocotillo. The western boundary of the site would run along Imperial County's border with San Diego County. The unincorporated communities of Jacumba and Boulevard, California are located approximately eight and ten miles west of the proposed OWEF, respectively. Construction and operation workers for the OWEF would commute to the site from the City of El Centro (approximately 25 miles east) of the OWEF and other area of San Diego County. Thus, both Imperial and San Diego Counties comprise the study area for the OWEF. Information in this section is based on regional and national sources.

3.14.1 Environmental Setting

The proposed OWEF would be located in a sparsely populated, rural area north of Interstate 8 (I-8) along the western border of Imperial County. The proposed OWEF site would be immediately north of the unincorporated town of Ocotillo and approximately 25 miles west of the nearest incorporated city, El Centro. While Ocotillo originally began as a retirement community in the 1950s, El Centro and its surroundings have a history of farming, with settlers originally coming to the area after Colorado River water was diverted to the Imperial Valley desert floor by canals.

3.14.1.1 Population

Current and forecasted population in the study area is summarized in Table 3.14-1. As shown in the table, between 2010 and 2030, while San Diego County is projected to have a greater increase in total population, Imperial County is expected to grow at a faster rate proportional to its current population.

Table 3.14-1. Population Profile and Projections of the Study Area, 2010–2030

Jurisdiction	1990	2000	2010	2020	2030
Imperial County	109,303	142,361	189,675	239,149	283,693
San Diego County	2,498,016	2,813,833	3,199,706	3,550,714	3,950,757

Source: DOF 2007, DOF 2010a, US Census 2000a, US Census 1990.

3.14.1.2 Housing

In order to characterize the housing profile of the study area, current housing trends for the study area are summarized in Table 3.14-2, Housing Profile of the Study Area, Year 2010. As shown in Table 3.14-2, the study area contains a high number of housing units, with unincorporated San Diego County and El Centro containing a similar vacancy rate. Unincorporated Imperial County, however, had a high vacancy rate with over 27.2 percent of its total housing available.

Table 3.14-2. Housing Profile of the Study Area, Year 2010

Jurisdiction	2010 Housing Units	2010 Vacancy Rate (%)	2010 Rental Vacancy Rate (%)
Unincorporated Imperial County	15,156	27.2	7.5
Unincorporated San Diego County	167,104	6.19	5.5
El Centro	14,461	6.69	N/A

Source: DOF 2010b, US Census 2010a, US Census 2010b.

While a few residential properties are located adjacent to the proposed OWEF site boundary, the closest of these residences is 0.5 miles from the nearest wind turbine and most housing in the community of Ocotillo is at least .75 miles from the wind turbines. Please see Section 3.19, Visual Resources, for a description of typical views of the wind turbines from these residences. As of April 2011, the median home price in Ocotillo was $99,900 and declining. In contrast, the median price for homes in El Centro was $138,900 and increasing, although this is after the housing market bottoming out with 31.4 percent of homeowners owing more than the value of their homes (Zillow, 2011; Woolsey, 2008).

Temporary accommodations in the area include the Ocotillo Motel and Jackson's Hide-A-Way RV Parks in Ocotillo and El Centro has approximately 20 hotels, motels, inns, and bed and breakfasts (TripAdvisor, 2011; Yahoo Local, 2011).

3.14.2 Economic Conditions

The following section provides an economic background for the regional economy in which the proposed OWEF would be located, including the community of Ocotillo, the City of El Centro, and Imperial and San Diego Counties. Ocotillo, with a 2010 population of 312, has few businesses, most of which cater to travelers on I-8. As described above in Section 3.14.1.2, Housing, home prices in the community of Ocotillo have been on the decline, demonstrating the contraction in economic activity in the area immediately adjacent to the proposed OWEF site. El Centro has been hard hit by the recession, with the highest unemployment rate for a metropolitan area in the country. Imperial County's economy is largely driven by agriculture, though in the last few years has seen a massive influx from the renewable energy industries. San Diego County's economy, by contrast, is driven by industries in and around the City of San Diego, including military/defense, international trade, manufacturing, as well as tourism and recreation, which are the primary economic drivers for the region of unincorporated San Diego County nearest the proposed OWEF.

3.14.2.1 Employment

Table 3.14-3 presents employment by sector for Imperial and San Diego counties for January 2011. As shown in the table, San Diego County has the higher total employment commensurate with a greater population. Government employs the largest proportion of individuals in both Imperial and San Diego counties. Among all private industries within the study area, the trade, transportation, and utilities industry has the highest total employment in Imperial County; in San Diego County, professional and business services is the largest employment sector.

Table 3.14-3. Employment Profile of the Study Area (December 2010)

Industry	Imperial County	Imperial County (% of total employment)	San Diego County	San Diego County (% of total employment)
Farming	10,800	20	8,400	1
Mining, Logging, and Construction	1,100	2	55,800	5
Manufacturing	2,200	4	90,600	7
Trade, Transportation, and Utilities	10,200	19	200,800	16
Information	400	1	35,400	3
Financial Activities	1,300	2	68,600	6
Professional and Business Services	2,600	5	201,500	16
Educational and Health Services	3,700	7	148,400	12
Leisure and Hospitality	3,300	6	152,600	12

Table 3.14-3. Employment Profile of the Study Area (December 2010)

Industry	Imperial County	Imperial County (% of total employment)	San Diego County	San Diego County (% of total employment)
Other Services	800	1	47,800	4
Government	18,500	34	223,600	18
Total Employed	54,900	100	1,233,500	100

Source: CAEDD 2011a, CAEDD 2011b.

3.14.2.2 Income

Since the most comprehensive set of economic data is available at the county level, the following highlights income information and trends for Imperial and San Diego Counties. In 2009 Imperial County had a per capita personal income (PCPI) of $28,681. In contrast, San Diego in 2009 had a PCPI of $45,706. Imperial County's PCPI ranked 49th in the state and was 68 percent of the state average, $42,395, while San Diego's PCPI ranked 13th in the state and was 108 percent of the state average. The 2009 Imperial County PCPI reflected an increase of 0.1 percent from 2008, while San Diego County's PCPI decreased by 2.8 percent from 2008 to 2009. The 2008-2009 state change was -3.3 percent and the national change was -2.6 percent. The 1999-2009 average annual growth rate of PCPI was 4.2 percent for Imperial County and 3.9 percent for San Diego County. The average annual growth rate for the state was 3.3 percent and for the nation was 3.4 percent (BEA 2009a, BEA 2009b).

Table 3.14-4. Gross Domestic Product by Industry (February 2011)

Industry	Imperial County ($ millions)	Imperial County (% of total GDP)	San Diego County ($ millions)	San Diego County (% of total GDP)
Farming	(D)	N/A	637	0
Mining and Natural Resources	688	16	232	0
Construction	108	3	6,411	4
Utilities	168	4	3,453	2
Manufacturing	194	5	13,588	8
Wholesale Trade	225	5	6,894	4
Retail Trade	383	9	9,044	5
Transportation	100	2	1,801	1
Information	44	1	10,956	6
Financial Activities	124	3	8,291	5
Real Estate	265	6	34,387	20
Professional and Technical Services	82	2	19,956	12
Management	13	0	1,534	1
Administrative and Waste Services	100	2	4,639	3
Educational Services	176	4	1,541	1
Health Care	176	4	9,322	5
Arts, Entertainment, and Recreation	6	0	1,607	1
Accommodation and Food Services	95	2	5,330	3
Other Services	104	2	3,760	2
Government	1412	33	31,088	18
Total Employed	4296	100	171,471	100

(D) - Not shown in order to avoid the disclosure of confidential information; estimates are included in higher level totals.
Source: BEA, 2011.

3.14.2.3 Labor Force

The number of unemployed in Imperial County is approximately 21,300, nearly 28.3 percent of the civilian population, but down from almost 32 percent in July through September. In San Diego County, the unemployed numbered 156,900, approximately 10.1 percent, down from 10.4 percent in November. Imperial County's unemployment rate is substantially higher than California's state average of approximately 12.3 percent, while San Diego County's unemployment rate is lower (CAEDD, 2011a; CAEDD, 2011b). According to the Bureau of Labor Statistics, as of April 30, 2009 the El Centro area had a 25.0% unemployment rate, the highest for a Metropolitan Area in the country, although this figure is inflated due to El Centro's seasonal farming economy, which results in the city having a fixed baseline unemployment rate of 12 percent (Woolsey, 2009).

3.14.2.4 Government Tax Revenues

While tax revenues for Imperial County declined from fiscal year (FY) 2008-2009 to FY 2009-2010, projected revenues for FY 2010-2011 increased from FY 2009-2010, as shown in Table 3.14-5. Similarly for San Diego County, tax revenues declined between FY 2008-2009 and FY 2009-2010, but increased for FY 2010-2011, as also shown in Table 3.14-5.

Table 3.14-5. Tax Revenue Trends for Imperial and San Diego Counties – FY 2008-2011.

Revenue	FY 2008-2009	FY 2009-2010	FY 2010-2011
Imperial County			
Property Tax	$15,499,626	$13,092,556	$13,303,685
Sales and Use Tax	$1,889,434	$1,351,241	$1,500,000
Other Tax	$463,161	$360,984	$395,000
Public Safety Tax	$9,364,656	$9,068,976	$9,000,000
San Diego County			
Property Tax	$543,100,000	$496,300,000	$496,900,000
Sales and Use Tax	$42,500,000	$29,300,000	$31,100,000
Other Tax	$108,200,000	$115,900,000	$115,600,000
Property Tax in Lieu of Vehicle License Fee	$321,000,000	$309,300,000	$309,300,000

Source: Imperial County, 2011;

3.14.3 Applicable Regulations, Plans, and Standards

Federal

NEPA

Under NEPA (42 United States Code (USC) 4321 et seq.), an EIS must include an analysis of the Proposed Action's economic, social, and demographic effects related to effects on the natural or physical environment in the affected area, but does not allow for economic, social, and demographic effects to be analyzed in isolation from the physical environment.

State

CEQA

Title 14 of the California Code of Regulations, Chapter 3, Guidelines for Implementation of the CEQA, Article 9(a), Section 15131, states the following with regard to economic and social effects:

> *(a) Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.*
>
> *(b) Economic or social effects of a project may be used to determine the significance of physical changes caused by the project. For example, if the construction of a new freeway or rail line divides an existing community, the construction would be the physical change, but the social effect on the community would be the basis for determining that the effect would be significant. As an additional example, if the construction of a road and the resulting increase in noise in an area disturbed existing religious practices in the area, the disturbance of the religious practices could be used to determine that the construction and use of the road and the resulting noise would be significant effects on the environment. The religious practices would need to be analyzed only to the extent to show that the increase in traffic and noise would conflict with the religious practices. Where an EIR uses economic or social effects to determine that a physical change is significant, the EIR shall explain the reason for determining that the effect is significant.*
>
> *(c) Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment identified in the EIR. If information on these factors is not contained in the EIR, the information must be added to the record in some other manner to allow the agency to consider the factors in reaching a decision on the project.*

Local

In San Diego County, the Proposed Action would affect only unincorporated areas. In Imperial County, the OWEF would affect unincorporated county areas as well as the incorporated City of El Centro. The City of El Centro, however, has no policies or plans applicable to the proposed OWEF. The relevant polices of Imperial and San Diego Counties are summarized below.

Imperial County

The General Plan for Imperial County includes a Housing Element (Imperial County, 2000). Section Three of the Housing Element provides goals for housing, and identifies objectives and policies to achieve each goal, which include:

- Housing Demand and Accessibility. Goal 1: Ensure the provision of housing sites in suitable locations and with adequate services which collectively accommodate a range of housing types, sizes, and prices meeting the needs of all economic segments of the county's population.
- Housing Supply and Affordability. Goal 2: Provide the opportunity to obtain affordable housing which is safe, decent, and sanitary and within a suitable living environment with reasonable accessibility to employment.
- Housing Opportunities. Goal 3: Ensure that housing opportunities are available to all income groups in all communities without discrimination on the basis of race, religion, ethnicity, sex, age, marital status, or household composition.

San Diego County

San Diego Association of Governments Regional Comprehensive Plan (RCP) (SANDAG, 2004). San Diego Association of Governments (SANDAG) Regional Comprehensive Plan (RCP) is the long-term planning framework for the San Diego region. The RCP is intended to provide a broad context in which local and regional decisions can be made to foster a healthy environment, a thriving economy, and a high quality of life for all residents.

3.15 Soil Resources

This section describes the existing geology, soil conditions, and seismicity in the project area in terms of local topography, geologic substrate, soil resources, and regional seismicity. This section also identifies local geologic and seismic hazards that could potentially affect structures associated with the proposed OWEF. Regulations, plans, and policies including Federal, State, and local laws related to geologic and seismic considerations that may be relevant to the Proposed Action are also discussed.

3.15.1 Environmental Setting

The alluvial plain on which the proposed OWEF site is located is bounded to the west and south by the Inkopah and Jacumba Mountains, to the north by the Coyote Mountains, and to the east the area grades into the Imperial Valley and Yuha Desert (NAA, 2010). Elevations in the proposed OWEF site range from approximately 1,490 feet above mean sea level (amsl) in the southwest portion of the proposed OWEF site to 300 feet amsl in the northeast portion of the proposed OWEF site. Elevation generally decreases from the west to the east. To the west, the flanks of the Jacumba Mountains create rugged, rocky topographical features, low hills, and eroded badlands.

Regional Geology

The Imperial Valley, located within the Salton Trough, is a broad, flat, alluvial area that lies partly below sea level, bounded to the east by branches of the San Andreas Fault and the Brawley Seismic Zone, and to the west by the San Jacinto-Coyote Creek and Elsinore-Laguna Salada Faults (Imperial County, 2006b). The proposed OWEF site is situated in the southwestern-most portion of the Colorado Desert geomorphic province, which encompasses an area that extends roughly 100 miles in width from the Peninsular Ranges on the west to the Colorado River on the east, bounded to the north by the Transverse Ranges. The oldest rocks in the province are Pre-Cambrian metamorphic rocks in the Chocolate, Cargo Muchacho, Orocopia, and Chuckwalla Mountains. The most recent units are lake deposits formed in the ancient Lake Cahuilla, which underlies the current Salton Sea and much of the Salton Trough. (NAA, 2010)

Local Geology

The proposed OWEF site is an alluvial highland that extends east northeast from the Jacumba Mountain region towards the Imperial Valley near the southern end of the Salton Sea. Sedimentary materials in the basin record information about interactions among fault systems, store groundwater (see Section 3.20, Water Resources), and have been utilized for sand and gravel resources (see Section 3.8, Mineral Resources). The proposed OWEF site is undeveloped and relatively barren, with a sparse growth of desert vegetation. Soils consist primarily of younger Holocene to Pleistocene age alluvium. The surface soil consists of medium-dense to dense, poorly graded sands with little fines at the surface. The sands become somewhat cemented in the subsurface, while non-cemented poorly graded sands generally become more dense with depth. (NAA, 2010)

Table 3.15-1, provided below, describes the soils found at the proposed OWEF site and surrounding area.

Table 3.15-1. Soils in the Vicinity of the Proposed OWEF

Code	Series	Description	Geographic Setting	Drainage / Permeability
CA605	Beeline	Shallow and very shallow, formed in mixed alluvium weathered from sandy conglomerate.	Fan terraces and hills with slopes of 3-45%; elevations 1,400-2,000 feet above msl*.	Well drained; medium to rapid runoff; moderately rapid permeability.
CA918	LaPosa	Moderately deep, formed in slope alluvium from schist, granite, gneiss, rhyolite, and eolian deposits.	Hills and mountains with slopes of about 10-75%; elevations 400-3,200 feet above msl.	Somewhat excessively drained; rapid runoff; moderate permeability.
CA604	Rositas	Very deep, formed in sand eolian material.	Dunes and sand sheets with slopes of 0-30%; elevations 270-2,000 feet above msl.	Somewhat excessively drained; negligible to low runoff; rapid permeability.
CA627	Sheephead	Shallow, formed in material weathered from mica, schist, gneiss, or granite.	Mountainous uplands with slopes of 9-75%; elevations 2,000-7,500 feet above msl.	Somewhat excessively drained; medium to very rapid runoff; moderately rapid permeability.
CA632	Omstott	A member of the loamy, mixed, nonacid, mesic, shallow family of typic xerorthents.	Gently rolling to steep uplands with elevations of 3,600-5,000 feet above msl.	Well-drained; rapid to medium runoff; moderate and moderately rapid permeability.

Source: NAA, 2010. See Plate 1A, Soils Location Map; NRCS, 2010
* msl: mean sea level

The Preliminary Geotechnical Investigation prepared for the proposed OWEF describes that the project site and Yuha Desert surface material is composed of silts, sands, limited clays, gravels, cobbles and boulders, as verified in the soils descriptions presented above. Quaternary lake deposits, alluvium, stream channel deposits, fan deposits, and Pleistocene non-marine deposits comprise the majority of the material with local origin from the Inkopah and Jacumba Mountains to the west and south, and by the Coyote Mountains to the north. The thickness of alluvial sediments around the proposed OWEF site appear to range from 50 feet or less at the edge of the mountains, upwards to 350 feet in cross-section near the deeper middle alluvial fan portions of the site. (NAA, 2010)

No unique geologic features or geologic features of unusual scientific value for study or interpretation have been identified or would be disturbed or otherwise adversely affected by the proposed OWEF. Fossil Canyon, also known as Shell Canyon, is located in the Anza-Borrego Wilderness to the west of the proposed OWEF site, and is identified as an Area of Critical Environmental Concern (ACEC), but is not located within the geographic area of study for the affected environment relevant to soil resources. Unique and/or unusual cultural and paleontological resources are addressed in Sections 4.4 (Cultural Resources) and 4.10 (Paleontological Resources) of this EIS/EIR.

Geologic Hazards

As described in the Seismic and Public Safety Element of the Imperial County General Plan, earthquakes are the principal geologic activity affecting public safety in the County (Imperial County, 2006b). Potential impacts to public safety associated with earthquakes and seismic activity, as relevant to the Proposed Action, are addressed in Section 4.11 (Public Health and Safety) of this EIS/EIR. The following discussion characterizes geologic hazards in the proposed OWEF area, including earthquakes and seismic activity, as relevant to the environmental setting for soil resources.

Seismic Ground Shaking. The highland on which the proposed OWEF is located is traversed by multiple strands of the Coyote Mountain and Laguna Salada Faults, and is punctuated by localized compression that forms dome-shaped hills of uplifted sand and gravel. The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the affected area and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the project area. Earthquakes occurring on faults closest to the proposed OWEF area would most likely generate the largest ground motion. The proposed OWEF site and surrounding area will be subject to ground shaking associated with earthquakes on the faults listed below, in Table 3.15-2.

Table 3.15-2. Active Faults Located within 60 Miles of the Proposed OWEF Site

Earthquake Fault Source	Geometry*	M_{max}**	Distance (mi)
Elsinore – Coyote Mountain	rl-ss	6.8	2.7
Laguna Salada	rl-ss	7.0	11.8
San Jacinto – Borrego	rl-ss	6.6	17.7
Superstition Mountain (San Jacinto)	rl-ss	6.6	17.8
Elsinore – Julian	rll-*ss*	7.1	21.3
Superstition Hills (San Jacinto)	rl-ss	6.6	21.8
Elmore Ranch	*ll-ss*	6.6	22.1
Earthquake Valley	rl-ss	6.5	28.6
San Jacinto – Coyote Creek	rl-ss	6.8	30.4
Imperial	rl-ss	7.0	31.3
San Jacinto – Anza	rl-ss	7.2	34.1
Brawley Seismic Zone	rl-ss	7.0	35.6
San Andreas – Coachella	rl-ss	7.2	45.3
San Andreas – Southern	rl-ss	7.2	45.3
Rose Canyon	rl-ss	7.2	61.6

Source: NAA, 2010

* Geometry = (ss) strike slip, (r) reverse, (n) normal, (rl) right lateral, (ll) left lateral, (o) oblique

** M_{max} = Maximum moment magnitude calculated from relationships (Rupture area) derived by Wells and Coppersmith (1994).

The intensity of earthquake-induced ground motions, or seismic ground shaking, can be described using peak site accelerations, represented as a fraction of the acceleration of gravity (g). Peak ground acceleration is the maximum acceleration experienced by a particle on the Earth's surface during the course of an earthquake, and the units of acceleration are most commonly measured in terms of fractions of g, the acceleration due to gravity (980 cm/sec^2). Given the latitude and longitude of the proposed OWEF site, and the proximity of fault sources listed above in Table 3.15-2, the site has a peak design ground acceleration of 0.416g, in accordance with Section 1802.2.7 of the 2007 California Building Code (NAA, 2010).

The proposed OWEF site is not located within an Alquist-Priolo Special Studies Zone, which maps surface traces of known active faults; however, the site is within three miles of the Elsinore-Coyote Mountain Fault surface trace, and the potential for strong ground shaking is considered high due to this proximity. The potential for surface rupture at the proposed OWEF site is low. (NAA, 2010)

Due to the proposed OWEF site location within a seismically active area, additional measures would be implemented during design and construction of proposed infrastructure to prevent structural failures from occurring. International Building Code (IBC) standards and design parameters described in the proposed OWEF geotechnical report (NAA, 2010) require the structural engineer to account for large horizontal ground accelerations that would be caused from a maximum credible earthquake (MCE) event. The engineer would account for additional steel and possibly foundation size to resist seismic loads associated with loads from horizontal ground accelerations. Using the IBC methodology, a seismic site class is selected based on review of the soil type and observed soil strength for this site. The site class is considered with the site specific earthquake shaking parameters defined by the USGS, as well as overall turbine and tower geometry, stiffness and weights to calculate the seismic load (forces and moments) transferred into the foundation from the design seismic event. These maximum seismic design loads are then combined with the appropriate operational load event (from wind and weight of tower/foundation) to calculate the maximum force and moment combination resulting from a seismic event. The appropriate operational plus seismic load combination is compared against the extreme wind event to determine if the extreme seismic event or the extreme wind event should control the infrastructure design. The controlling load case is then used for designing the turbine foundation. (Pattern, 2011)

Liquefaction. Liquefaction occurs when saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong ground-shaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude and frequency of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction. The proposed OWEF site is considered to have low potential for liquefaction. There is no evidence in the area that liquefaction induced by seismic ground motions has occurred. The lack of groundwater in the upper 50 feet along with the age and density/stiffness of the geologic formation is not prone to liquefaction surface distress. (NAA, 2010)

Lateral Spreading. Lateral spreading of the ground surface can occur within liquefiable beds during seismic events. Factors such as distance from the earthquake epicenter, the magnitude of the seismic event, and the thickness and depth of liquefiable layers affect the amount of lateral spreading that may occur. As described above, the proposed OWEF site is considered to have low potential for liquefaction; therefore the potential for lateral spreading to occur is also considered low.

Dynamic Compaction. Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume, as the soil grains tend to rearrange into a more dense state. The decrease in volume can result in settlement of overlying structural improvements. (BLM, 2010)

Due to geologic characteristics of the project site, the potential for dynamic compaction to occur is considered low.

Hydrocompaction. Hydrocompaction, or hydro-collapse, is generally limited to young soils that were deposited rapidly in a saturated state, most commonly by a flash flood. The soils dry quickly, leaving an unconsolidated, low density deposit with a high percentage of voids. Foundations built on these types of compressible materials can settle excessively, particularly when landscaping irrigation dissolves the weak cementation that is preventing the immediate collapse of the soil structure. (BLM, 2010)

Due to geologic characteristics of the project site, the potential for hydrocompaction to occur is considered low.

Subsidence. Subsidence is a settlement or lowering of the ground surface elevation due to factors such as tectonic movement, seismic compaction, hydrocompaction, consolidation induced by groundwater withdrawal, and consolidation under applied loads. Regional ground subsidence is typically caused by petroleum or groundwater withdrawal that increases the effective unit weight of the soil profile, increasing stress on deeper soils and resulting in consolidation or settlement of underlying soils (BLM, 2010). Regional subsidence of the Salton Trough is occurring due to ongoing tectonism and possibly basin loading (BLM, 2010). However, minor settling spread over the Salton Trough is considered unlikely to result in localized subsidence in the proposed OWEF area.

Expansive Soils. Expansive soils are characterized by their ability to undergo volume change (shrink and swell) due to variation in soil moisture content. Changes in soil moisture could result from precipitation, irrigation, utility leakage, and/or perched groundwater, among other factors. Expansive soils are typically very fine grained with a high to very high percentage of clay. The soil characteristics presented in Table 3.15-1 (Soils in the Vicinity of the Proposed OWEF) indicate a low shrink-swell potential for soils at the proposed OWEF site and vicinity. In addition, the "Soil Survey of Imperial County" indicates that the Rositas series, which is most likely to occur on the proposed OWEF site per characteristics listed in Table 3.15-1 (Soils in the Vicinity of the Proposed OWEF), has a low shrink-swell potential (NRCS, 1981). Therefore, the subsurface in the vicinity of the proposed OWEF is not considered to be expansive.

Landslides. The Imperial County General Plan Landslide Activity map indicates moderate potential for landslide activity within and to the south of the community of Ocotillo, low potential for landslide activity within and west-southwest of the community of Ocotillo, and no potential for landslide activity to the north and east (Imperial County, 2006a; see Figure 8, Landslide Activity). As such, portions of the proposed OWEF site are located in the vicinity of areas mapped as having some potential for landslide activity. However, the Preliminary Geotechnical Investigation indicates that the project site is not located close enough to any of the surrounding hillside mountains to be affected by either a debris flow or a landslide (NAA, 2010). Therefore, this topic is not discussed further in this analysis.

3.15.2 Applicable Regulations, Plans, and Standards

3.15.2.1 Federal

International Building Code. The 2006 International Building Code (IBC) is a model building code developed by the International Code Council (ICC) that sets rules specifying the minimum acceptable level of safety for constructed objects such as buildings in the United States. As a model building code, the IBC has no legal status until it is adopted or adapted by government regulation. California has adopted the IBC. The IBC was developed to consolidate existing building codes into one uniform code that provides minimum standards to ensure the public safety, health and welfare insofar as they are affected by building construction and to secure safety to life and property from all hazards incident to the occupancy of buildings, structures and premises. With some exceptions, the California Building Code discussed below is based on the ICB.

Federal Land Policy and Management Act of 1976 as Amended. The Federal Land Policy and Management Act (FLPMA) establishes policy and goals to be followed in the administration of public lands by the BLM. The intent of FLPMA is to protect and administer public lands within the framework of a program of multi-use and sustained yield, and the maintenance of environmental quality. Particular emphasis is placed on the protection of the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources and archaeological values. FLPMA is also charged with the protection of life and safety from natural hazards.

California Desert Conservation Area Plan. The California Desert Conservation Area (CDCA) Plan defines multiple-use classes for BLM-managed lands within the CDCA, which includes land area encompassing the proposed OWEF site. With respect to geological resources, the CDCA Plan aims to maintain the availability of mineral resources on public lands for exploration and development.

3.15.2.2 State

California Building Code. The California Building Code (California Building Code 2007) includes a series of standards that are used in project investigation, design and construction (including grading and erosion control). The CBC 2007 Edition is based on the 2006 ICB as published by the International Code Council, with the addition of more extensive structural seismic provisions. Chapter 16 of the CBC contains definitions of seismic sources and the procedure used to calculate seismic forces on structures.

Alquist-Priolo Earthquake Fault Zoning Act. The Alquist-Priolo Earthquake Fault Zoning Act of 1972 regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. This act provides mitigations against surface fault rupture of known active faults beneath occupied structures, and requires disclosure of the presence of any seismic faults to potential real estate buyers and a 50-foot setback for new occupied buildings. The Alquist-Priolo Earthquake Fault Zoning Act helps define where fault rupture is most likely to occur. This act groups faults into categories of active, potentially active and inactive.

Seismic-Hazards Mapping Act. The Seismic Hazards Mapping Act of 1990 directs the California Geological Survey to delineate seismic hazard zones. The purpose of this act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. These seismic hazards include areas that are subject to the effects of strong ground shaking such as liquefaction, landslides, tsunamis and seiches. Cities, counties, and state agencies are directed to use seismic hazard zone maps developed by the California Geological Survey in their land use planning and permitting processes. This act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones.

3.15.2.3 Local – Imperial County

The Seismic and Public Safety Element of the County of Imperial (County) General Plan contains requirements for the avoidance of geologic hazards and/or the protection of unique geologic features. Section 5.3.5.3 of the County's Seismic and Safety Element requires utilities that cross active faults to prepare an operations plan.

3.16 Special Designations

This section describes the special designations of the proposed OWEF site. The following discussion addresses existing special designations in the proposed OWEF area, and existing laws and regulations relevant to special designations. The study area is the proposed OWEF area as defined in Figure 2.3-1.

3.16.1 Environmental Setting

3.16.1.1 Regional Setting

The proposed OWEF would be located in the Imperial Valley in southwestern Imperial County. Nearly the entire project site is located within the Yuha Desert Recreation Area. The proposed OWEF site is located immediately north of the Jacumba Wilderness, approximately two miles east of the Yuha Area of Critical Environmental Concern (ACEC), approximately 1.5 miles southwest of the Plaster City Off-Highway Vehicle Open Area, approximately one mile south of the Coyote Mountains Wilderness, and adjacent to the Anza-Borrego Desert State Park. The proposed OWEF would be potentially visible from these special land use areas. Figure 3.16-1 displays these special land use areas in relation to the project site.

3.16.1.2 Project Setting

The proposed OWEF would be located almost entirely on BLM-administered lands in the Imperial Valley. A new high-voltage transmission line, known as the Sunrise Powerlink, crosses the proposed project site (Figure 2.3-1). Undeveloped range land is currently present on the proposed OWEF site. Additionally, a number of BLM rough bladed or two-tracked surface roads cross the proposed OWEF site. Current and historic uses of the proposed OWEF site include open space, off-road recreational vehicle activities, hunting, hiking, and camping. The proposed OWEF would be located in the Colorado Desert bioregion. Onsite vegetation consists of desert scrub communities such as brittle bush scrub, creosote bush scrub, teddy bear cholla scrub, white bursage scrub, and Wolf's cholla scrub. Other vegetation communities include smoke tree woodland, un-vegetated sand dunes, un-vegetated streambed, and badlands.

No designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance exists within the project area (DOC, 2008). No Williamson Act Contract land is present and no forest land designated by the California Department of Forestry and Fire Protection or the United States Department of Agriculture, Forest Service exists on the project site.

3.16.1.3 Areas of Critical Environmental Concern (ACEC)

The BLM uses the ACEC designation to highlight public land areas where special management attention is necessary to protect and prevent irreparable damage to: important historical, cultural, and scenic values; fish or wildlife resources; or other natural systems or processes.

The ACEC designation may also be used to protect human life and safety from natural hazards. The BLM identifies, evaluates, and designates ACECs through its resource management planning process. Allowable management practices and uses, mitigation, and use limitations, if any, are described in the planning document.

Coyote Mountains Fossil Site ACEC. The Coyote Mountains Fossil Site ACEC is managed by the BLM, comprises approximately 5,870 acres and is designated as an ACEC because of its significant cultural and historic resources. The proposed OWEF would be located approximately 1.8 miles south of this ACEC and would be potentially visible from this special land use area.

Table Mountain ACEC. The Table Mountain ACEC is managed by the BLM, comprises approximately 4,300 acres and is designated as an ACEC because of its significant natural, cultural and historic resources. The proposed OWEF would be located approximately three miles northeast of this ACEC and would be potentially visible from this special land use area.

Yuha Basin ACEC. The Yuha Basin ACEC is managed by the BLM, comprises approximately 71,930 acres and is designated as an ACEC because of its significant natural, cultural and historic resources (e.g., Flat-tail Horned Lizard populations, Yuha well, Yuha geoglyph, and Juan Bautista de Anza National Historic Trail) (BLM, 2004). Camping is permitted only within six BLM-designated primitive campgrounds located south of the proposed OWEF and Interstate 8 in the Yuha Desert. The BLM primitive campgrounds are widely dispersed, and undeveloped (i.e., without toilets, electricity, or water). These BLM primitive campgrounds are located along the Juan Bautista de Anza National Historic Trail (BLM, 2004). The proposed OWEF would be located approximately two miles west of this ACEC and would be potentially visible from this special land use area.

3.16.1.4 Back Country Byways

No Back Country Byways are located within the vicinity of the proposed OWEF.

3.16.1.5 National Recreation Areas

Plaster City Off Highway Vehicle (OHV) Open Area. This area provides 41,000 acres of open desert terrain for OHV recreationists and includes two staging areas, Plaster City East and Plaster City West, that are popular primitive camping and day use areas (BLM, 2009a). Vehicles and camping are permitted anywhere in the area. The proposed OWEF would be located approximately 1.5 miles southwest of this area and would potentially be visible from this special land use area. Development of the proposed OWEF and security measures may impact the OHV traffic and associated recreational experiences due to rerouting of roads, closures of existing travel routes, creation of strong visual contrasts, and implementation of site security measures.

3.16.1.6 National Scenic and Historic Trails

The Juan Bautista de Anza National Historic Trail meanders through terrain ranging from extreme deserts to mountains and along coastal areas between Nogales, Arizona, and San Francisco, California. This trail is located approximately 4 miles east of the proposed OWEF site and would potentially be visible from this special land use area.

3.16.1.7 Wild and Scenic Rivers

No wild and scenic rivers are located within the vicinity of the proposed OWEF.

3.16.1.8 Wilderness Areas

National Wilderness Areas, designated by Congress, are defined by the Wilderness Act of 1964 as places "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." Designation is aimed at ensuring these lands are preserved and protected in their natural condition. Wilderness Areas, which are generally 5,000 acres or more in size, offer outstanding opportunities for solitude or a primitive and unconfined type of recreation; such areas may also contain ecological, geological, or other features that have scientific, scenic, or historical value.

With some exceptions, commercial enterprises, construction of temporary or permanent roads, use of motorized vehicles and other mechanical transport, aircraft landings, and construction of structures and other installations may not occur in wilderness areas.

California Desert Conservation Area (CDCA) Plan. The proposed OWEF would be located in an area governed by the CDCA Plan. The 25 million-acre CDCA is a special planning area administered by the BLM that contains over 12 million acres of public lands within the California Desert, which includes the Mojave, the Sonoran, and a small portion of the Great Basin Deserts. The goal of the CDCA Plan is to provide for economic, educational, scientific, and recreational uses of public lands and resources in the CDCA in a manner that enhances use without diminishing the environmental, cultural, and aesthetic values of the desert. The CDCA Plan, as amended (BLM, 1980), identifies wind energy development as an authorized use of public lands, consistent with the Plan and the NEPA. Consequently, public lands located in the CDCA are not restricted from wind energy development.

California Desert District. The mission of the California Desert District (CDD) of the BLM is to protect the natural, historic, recreational and economic riches of the California Desert for generations to come. In 1976, the United States Congress created the California CDCA, which covers nearly one quarter of the State. As one of the government's primary authorities for the management of public lands, the BLM - through the CDD - acts as steward for 10.4 million acres of this 26 million-acre preserve. In an effort to provide the most benefit to the most people, while preserving this rugged and awe inspiring landscape, the CDD developed a balanced, multiple-use plan to guide the management of this vast expanse of land. The plan, completed in 1980 with the help of the public, divides the desert into multiple-use classes. These classes were created in order to define areas in critical need of protection, while allowing for the use and development of less-vital parts of the desert.

Jacumba Wilderness. The Jacumba Wilderness is a 31,357-acre federal wilderness area administered by the BLM. The Jacumba Mountains sit on the eastern flank of southern California's coastal peninsular ranges, extending to the international border. The Jacumba Mountains are a broad range, made up of ridges and intervening valleys (BLM, 2009b). The Davies Valley is the largest valley in the wilderness area and is used for hiking, equestrian use, photography, and nature study. A staging area for hiking and riding into Davies Valley is located at the end of Clark Road, south of Ocotillo on State Route 98. The proposed OWEF would be located immediately north of the Jacumba Wilderness and would potentially be visible from this special land use area.

Coyote Mountain Wilderness. Approximately 40 percent of the Coyote Mountain Wilderness is occupied by the Coyote Mountains. Overall, the Coyote Mountain Wilderness encompasses approximately 18,000 acres. Part of the Carrizo Badlands lies within the northern portion of the wilderness. The narrow, twisting gullies of the Badlands give the landscape a harsh, forbidding appearance. A group of unusual sandstone rock formations, believed to be six million years old, adds to the character of this wilderness. Fossil Canyon ACEC is located within the Coyote Mountains Wilderness (BLM, 2009c). The proposed OWEF would be located approximately one mile south of the Coyote Mountain Wilderness area and would potentially be visible from this special land use area.

Anza-Borrego Desert State Park. Anza-Borrego Desert State Park is the largest state park in California. Five-hundred miles of dirt roads, 12 wilderness areas and miles of hiking trails are found in this part of the California Desert. Running about 25 miles east-to-west and 50 miles north-to-south, it is California's largest state park encompassing more than 600,000 acres (Desert USA, 2011). The proposed OWEF would be located immediately adjacent to the east of this State Park and would be potentially visible from these special land use areas.

3.16.1.9 Wilderness Study Areas

Table Mountain Wilderness Study Area. The Table Mountain Wilderness Study Area is managed by the BLM and comprises approximately 1,018 acres. The proposed OWEF would be located approximately 2.1 miles northeast of this wilderness study area and would potentially be visible from this special land use area.

3.16.1.10 Donated Lands

The BLM can be the recipient and trustee of land donated by individuals or groups. Often such lands are donated with the expressed interest of preserving the resources that characterize these lands. In so doing, a restrictive instrument such as a conservation easement or deed restriction is attached to the donation and land that would control its use, often in terms of prohibiting development or change to the landscape. There is no record of such a donation and accompanying restrictive instrument associated with the proposed OWEF site.

3.16.2 Applicable Regulations, Plans, and Standards

3.16.2.1 Federal

National Landscape Conservation System

The National Landscape Conservation System (NLCS) is the primary management framework for specially designated lands or Special Management Areas (SMAs). In June 2000, the NLCS was created by the BLM to bring some of the agency's premier areas into a single system. The NLCS designations include National Monuments, National Conservation Areas, Designated Wilderness Areas and Wilderness Study Areas, National Scenic and Historic Trails, and Wild, Scenic, and Recreational Rivers (BLM, 2005).

Other special areas managed by the BLM outside of the NLCS framework include ACECs, Research Natural Areas, National Natural Landmarks, National Recreation Trails, and a variety of other area designations. The following summarizes the federal regulations, plans, and standards.

The BLM manages certain lands under its jurisdiction that possess unique and important historical, anthropological, ecological, biological, geological, and paleontological features. These features include undisturbed wilderness tracts, critical habitat, natural environments, open spaces, scenic landscapes, historic locations, cultural landmarks, and paleontologically rich regions. Special management is administered with the intent to preserve, protect, and evaluate these significant components of our national heritage. Most special areas are either designated by an Act of Congress or by Presidential Proclamation, or are created under BLM administrative procedures.

National historic trails, established as provided in section 5 of the National Trails System Act, are extended trails which follow as closely as possible and practicable the original trails or routes of travel of national historic significance. Designation of such trails or routes shall be continuous, but the established or developed trail, and the acquisition thereof, need not be continuous onsite. National historic trails shall have as their purpose the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment. Only those selected land and water based components of a historic trail which are on federally owned lands and which meet the national historic trail criteria established in this Act are included as federal protection components of a national historic trail. The appropriate Secretary may certify other lands as protected segments of an historic trail upon application from State or local governmental agencies or private interests involved if such segments meet the national historic trail criteria established in this Act and such criteria supplementary thereto as the appropriate Secretary may prescribe, and are administered by such agencies or interests without expense to the United States.

National scenic or national historic trails may contain campsites, shelters, and related-public-use facilities. Other uses along the trail, which will not substantially interfere with the nature and purposes of the trail, may be permitted by the Secretary charged with the administration of the trail. Reasonable efforts shall be made to provide sufficient access opportunities to such trails and, to the extent practicable, efforts be made to avoid activities incompatible with the purposes for which such trails were established.

3.16.2.2 State

Special designations refer specifically to the BLM and are not relevant to State government.

3.16.2.3 Imperial County

Special designations refer specifically to the BLM and are not relevant to Imperial County.

3.17 Transportation and Public Access

This section describes existing conditions related to transportation and public access, including applicable plans, policies, and regulations. Information contained within this section was provided primarily by the *Traffic Impact Analysis for the Ocotillo Express Wind Energy Facility, County of Imperial, California*, March 17, 2011, prepared by Linscott, Law, & Greenspan, Engineers (LL&G Engineers), which is included as Appendix H of this EIS/EIR and incorporated by reference herein.

Typical construction traffic would consist of trucks transporting construction equipment and materials to and from the site and vehicles of management and construction employees during the construction period. Since this is a remote area and all materials have to be brought from large distances and personnel would have to travel either from El Centro or San Diego, all traffic would utilize I-8 for regional travel and the Imperial Highway interchange to access the site. Therefore, the interchange and two intersections, one north (Evan Hewes/Imperial highway intersection) and one south (SR 98/Imperial Highway) of I-8 are included as part of the study area.

3.17.1 Environmental Setting

Regional and Local Roadway Facilities

Evan Hewes Highway (County Route S80). Even Hewes Highway is an east-west road that parallels I-8 to the north. The road begins east of the City of Holtville at a junction at I-8 and travels through El Centro and Seeley before ending in Ocotillo. This road is typically used for local travel and provides an alternative route to I-8. In the project vicinity, Evan Hewes Highway is 2 lanes wide and does not have any bicycle lanes or curb / gutter / sidewalks. The posted speed limit is 55 miles per hour (mph). Evan Hewes Highway is also called Imperial County Route S80 and has been classified as a historic highway by the State of California since it was once part of U.S. Highway 80. Evan Hewes Highway is classified as a Prime Arterial in the Imperial County General Plan Circulation Element.

Interstate 8. Interstate 8 (I-8) is an interregional freeway between San Diego and Arizona. Through Imperial County, I-8 provides 2 lanes in each direction. The posted speed limit is 70 mph. The Imperial Highway interchange is the closest access between I-8 and the project site.

Imperial Highway (County Highway S2). Imperial Highway is classified as a Collector Road in the Imperial County General Plan Circulation Element. In the project vicinity, Imperial Highway is constructed as a two-lane undivided north-south roadway, providing one lane of travel in each direction north of SR 98 and through the town of Ocotillo. North of the town of Ocotillo, this facility turns west and nearly bisects the project site. No bike lanes or bus stops are provided. There are no curb, gutters or sidewalks and only dirt shoulders are provided. The posted speed limit in town is 35 mph. The posted speed limit through the project site is also 35 mph.

SR 98 (Yuha Cutoff). SR 98 is classified as a State Highway in the Imperial County General Plan Circulation Element. In the project vicinity, SR 98 is constructed as a two-lane undivided east-west roadway, providing one lane of travel in each direction. No bike lanes or bus stops are provided. There are no curb, gutters, or sidewalks, but paved shoulders are provided. The posted speed limit on SR 98 is 65 mph.

Shell Canyon Road. Shell Canyon Road is classified as a Local road in the Imperial County General Plan Circulation Element.

Dos Cabezas Road. Dos Cabezas Road is classified as a Local road in the Imperial County General Plan Circulation Element.

Figure 3.17-1 shows the existing road network in the project study area.

3.17.1.1 Existing Traffic Volumes

Peak Hour Intersection Turning Movement Volumes

Traffic counts were conducted on December 7, 2010, by LL&G Engineers. Morning (a.m.) and afternoon (p.m.) peak-hour intersection turning movement volume counts were conducted at the following locations:

- West Evan Hewes Hwy. / Imperial Hwy.
- I-8 West Bound Ramps / Imperial Hwy.
- I-8 East Bound Ramps / Imperial Hwy.
- SR 98 (Yuha Cutoff) / Imperial Hwy.

Segment Volumes

Daily traffic (ADT) volume counts were conducted by LL&G Engineers on December 7, 2010. Table 3.17-1 summarizes segment ADT volumes based on the traffic count conducted on the study area segments.

Table 3.17–1. Existing Traffic Volumes

Street Segment	Source	Date	ADT [a]
W. Evan Hewes Highway East of Imperial Highway	LLG	December 7, 2010	250
Imperial Highway I-8 EB Ramps to SR-98 Yuha Cutoff	LLG	December 7, 2010	240
SR-98 Yuha Cutoff West of Imperial Highway	LLG	December 7, 2010	1,140

a. Average Daily Traffic Volume.

3.17.1.2 Existing Levels of Service

Peak Hour Intersection Levels of Service

The project study area is located in a rural setting and all intersections are unsignalized. As shown in Table 3.17-2, all study area intersections are calculated to currently operate at LOS A during both the a.m. and p.m. peak hours.

Table 3.17-2. Existing Intersection Operations

Intersection	Control Type	Peak Hour	Existing	
			Delay [a]	LOS [b]
West Evan Hewes Highway / Imperial Highway	MSSC [c]	a.m.	9.0	A
		p.m.	8.8	A
I-8 WB Ramps / Imperial Highway	MSSC	a.m.	8.6	A
		p.m.	8.7	A
I-8 EB Ramps / Imperial Highway	MSSC	a.m.	8.8	A
		p.m.	8.8	A
SR 98 (Yuha Cutoff) / Imperial Highway	MSSC	a.m.	8.8	A
		p.m.	9.0	A

Table Notes:

a. Delay per vehicle in seconds
b. LOS - Level of service
c. MSSC - Minor street STOP Controlled intersection. Minor street left-turn delay is reported.

UNSIGNALIZED	
Delay	LOS
0.0 < 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
> 50.1	F

Daily Street Segment Levels of Service

As described above, the project study area is located in a rural setting and all segments are two-lane facilities. As shown in Table 3.17-3, all study area segments are calculated to currently operate at LOS B or better.

Table 3.17-3. Existing Street Segment Operations

Street Segment	Functional Roadway Classification [a]	Capacity (LOS E) [b]	ADT [c]	V/C [d]	LOS [e]
W. Evan Hewes Highway East of Imperial Highway	2-Lane Collector	16,200	250	0.015	A
Imperial Highway I-8 EB Ramps to SR-98 Yuha Cutoff	2-Lane Collector	16,200	240	0.015	A
SR-98 Yuha Cutoff West of Imperial Highway	2-Lane Collector	16,200	1,140	0.070	A

a. County of Imperial Valley roadway classification
b. Roadway capacity corresponding to Level of Service E from Imperial County Standard Street Classification, Average Daily Vehicle Trips table.
c. Average Daily Traffic volumes
d. Volume / Capacity ratio.
e. Level of Service

3.17.1.3 Project Access

Regional Access

Regional east/west access to project Site 1 (north of I-8) and Site 2 (south of I-8) is via I-8 and access to the north is via I-8/Imperial Highway. Access to the south is via Imperial Highway and SR 98 (Yuha Cutoff).

Local Access

Local access for Site 1 is from the I-8/Imperial Highway interchange, via Imperial Highway and Evan Hewes Highway. Local access for Site 2 is from the I-8/Imperial Highway interchange, via SR 98 and Imperial Highway. All surface streets in the study area are undivided two-lane roadways, generally with dirt shoulders. The section of Imperial Highway between the eastbound ramps and Evan Hewes Highway has paved shoulders. Curb, gutter and sidewalks are not provided. Project Sites 1 and 2 are served by an adequate network of roadways in this sparsely travelled area.

Site Access

Several site access driveways are proposed. Approximately six access driveways are located along Imperial Highway (County Highway S2), a paved two-lane road with dirt shoulders. Another eight access driveways are proposed on other paved two-lane public roadways (Figure 2.1-4). The project should ensure adequate sight distance at these access driveways for trucks to exit the project site without obstructing traffic on public streets.

Railways

The San Diego Imperial Valley Railroad from Plaster City in Imperial Valley to Campo in San Diego County runs through the southern edge of project Site 1 and a rail yard is planned in Site 1.

Bicycle Routes

There are no bicycle routes or facilities such as designated bicycle lanes on the roads discussed in this section.

Public Access

Public access refers to the legal rights of citizens to access public land for certain purposes without barriers or impediments. The affected environment related to public access includes recreational use of land by the public as well as other legal guarantees or limitations on access such as deeds, ROW, easements, leases, licenses, and permits.

The majority of the project study area is open desert land in Imperial County that is currently used for recreation activities. Based on a site visit in May 2010, recreation activities include camping, off-highway vehicle (OHV) use, and shooting.

3.17.2 Application Regulations, Plans, and Standards

Construction of the proposed project could affect access, traffic flow patterns, and parking on public streets and highways. Therefore, it is necessary for the Applicant and/or the construction contractor to obtain encroachment permits or similar legal agreements from the public agencies responsible for the affected roadways and other applicable ROWs. Such permits are needed for ROWs that would be affected by access road construction. For the proposed project, encroachment permits would be issued by, Caltrans, Imperial County, and other affected agencies and companies.

Federal

Title 49 Code of Federal Regulations (CFR) Subtitle B, Parts 171-173, 177-178, 350-359, 397.9 and Appendices AG. These code sections address safety considerations for the transport of goods, materials, and substances and governs the transportation of hazardous materials, including types of materials and marking of the transportation vehicles.

State

Caltrans. The use of State highways for other than transportation purposes requires an encroachment permit, Caltrans form TR-0100. This permit is required for utilities, developers, and non-profit organizations for use of the State highway system to conduct activities other than transportation (e.g., landscape work, utility installation, film production) within the ROW. The application would be forwarded to Caltrans District 11, which is where the proposed project is located. The Caltrans Traffic Manual (Chapter 5) provides Traffic Controls for Construction and Maintenance Work Zones. Also, any project requirement to transport oversize or overweight loads would require approval from Caltrans.

Local

Imperial County. Imperial County would require the Applicant to:

- Submit an encroachment permit application together with all required fees to the County of Imperial Public Works Director's Office. Approval and issuance of the permit must be obtained prior to all earth-disturbing activities.
- Submit a Transportation Permit application together with all required fees to the County of Imperial Public Works Director's Office. Approval and issuance of the permit must be obtained prior to all material and equipment hauling activities.
- Obtain approval of a traffic study prior to implementing a new project.

3.18 Vegetation Resources

This section describes the environmental setting; vegetation communities; invasive, noxious weeds; special status plant species; and state and federal jurisdictional areas that are present within the proposed 12,435.6-acre OWEF project site (proposed OWEF site), which includes Sites 1 and 2. It also lists the special status plant species that have potential to occur but that were not observed.

This discussion is based, in part, upon information from these sources:

- Vegetation mapping (identified within the biological technical report), a jurisdictional delineation, and special-status plant surveys conducted by 2010 Environmental Planning, Inc. (HELIX 2010, 2011a, 2011b, 2011c, 2011d, and 2011e);
- The California Environmental Resources Evaluation System (CERES 2011);
- The California Natural Diversity Database (CDFG 2010);
- The Inventory of Rare and Endangered Plants (CNPS 2011); and
- Calflora (2010).

3.18.1 Environmental Setting

The proposed OWEF site is located in the Yuha Desert, which is in the Colorado Desert region of the larger Sonoran Desert. The seven million-acre Colorado Desert region extends from the border of the higher-elevation Mojave Desert in the north to the Mexican border in the south, and from the Laguna Mountains of the Peninsular Ranges in the west to the Colorado River in the east. The Yuha portion extends from the Jacumba Mountains in the west to the historic West Side Main Canal near El Centro, and from Plaster City in the north to south of Mount Signal in Mexico.

The Colorado Desert is a desert of much lower elevation than the Mojave Desert to the north, and much of the land lies below 1,000 feet above mean sea level (AMSL). Mountain peaks rarely exceed 3,000 feet AMSL. Common habitat includes sandy desert, scrub, palm oasis, and desert wash. Summers are hot and dry, and winters are cool and moist. Anza-Borrego Desert State Park (ABDSP), located mostly in eastern San Diego County, but jutting into Imperial County, is the bioregion's largest recreation area, covering 600,000 acres.

Most of the proposed OWEF site is a designated BLM Limited Use Area in which all motorized vehicles are restricted to the use of marked, designated routes only. BLM dirt roads exist throughout the proposed OWEF site, and a dirt road occurs along the existing 500-kV transmission line which traverses the middle of the proposed OWEF site southwest to northeast. Illegal off-highway vehicle (OHV) trails criss-cross portions of the proposed OWEF site, and some areas are regularly used for camping and firearm activities. This area is also regularly patrolled by the U.S. Border Patrol. Despite the above-mentioned usage, the majority of the proposed OWEF site is relatively undisturbed.

Surrounding land uses include ABDSP to the west and BLM land to the north, east, and west. The Coyote Mountains Wilderness Area is located to the north, the Jacumba Wilderness Area is located to the south, and the Yuha Basin ACEC occurs to the southeast. The town of Ocotillo and several scattered residences outside of the town are located between Sites 1 and 2.

Elevations in the proposed OWEF site range from approximately 1,490 feet AMSL in the southwest portion of the proposed OWEF site to 300 feet AMSL in the northeast portion of the proposed OWEF site. Elevation generally decreases from the west to the east, with the Coyote Mountains to the north, and the Jacumba Mountains to the west and south. To the west, the flanks of the Jacumba Mountains create rugged, rocky topographical features, low hills, and eroded badlands.

The majority of the proposed OWEF site is comprised of desert scrub communities such as brittle bush scrub, creosote bush scrub, teddy bear cholla scrub, white bursage scrub, and Wolf's cholla scrub. Smoke tree woodland is also present on the site; it typically occurs in washes. Unvegetated areas include sand dunes, streambeds, and badlands.

Several named, dry desert washes cut through the proposed OWEF site and run generally from west to east: Palm Canyon Wash cuts through the center of Site 1; Myer Creek Wash cuts through the southern portion of Site 1; a portion of Coyote Wash cuts through the northwest portion of Site 2; and several additional unnamed washes cut through proposed OWEF site.

3.18.1.1 Vegetation Communities

Vegetation mapping within the proposed OWEF site was done through a combination of field surveys and aerial photo interpretation. The aerial photos were scaled at 1" = 400'. Vegetation data points were taken opportunistically with a global positioning system (GPS) to aid in aerial photo interpretation. There are limitations to aerial photo interpretation in the desert as the surface soils and geology often are more influential on the aerial photograph signature than the vegetation.

The BLM required that the National Vegetation Classification System (NVCS) be used for the Proposed Action. The Manual of California Vegetation, 2nd Edition (MCV; Sawyer et al., 2009) is the California extension of the NVCS. The mapping units used reflect the system presented in the MCV.

The MCV includes an introductory section on the difference between vegetation classification and vegetation mapping. This section includes the following thoughts on differences between vegetation classification and mapping.

> A vegetation map is a symbolic representation of visually distinct groupings of plants. A vegetation classification can afford much more detail and description. Classifications can afford much more floristic and structural details than those perceptible in aerial photographs, presented in digital signatures, or depicted on maps.
>
> Another important difference between a classification and a map is the issue of scale. A map is limited by the resolution of its base imagery and by its interpretation at a certain scale, but a classification need not be.

The difficulty in interpreting aerial photos and the points presented in the MCV regarding the differences between mapping and classifying vegetation speak to the difficulty in applying this classification system anywhere, and it is even more difficult in the desert. This discussion presents the best effort to communicate the environment within the study area given the limitations detailed here. The accuracy of this mapping could be improved but only at tremendous expense for vast additional hours of field work, including in some situations, mapping lengthy vegetation boundaries with the aid of a GPS.

Not all of the vegetation communities mapped within the proposed OWEF site are listed in the MCV, and those lacking formal names are given provisional names in the following discussion (e.g., Wolf's cholla scrub). The discussion also includes mapping units that are essentially unvegetated (e.g., rock/large boulder outcrop and badlands), which are not covered in the MCV. It should be noted that the vegetation communities listed in the MCV and discussed in this section are referred to by the less formal name. For example, in the MCV "allscale scrub" is formally referred to as "*Atriplex polycarpa* Shrubland Alliance."

Nineteen vegetation communities were mapped in the proposed OWEF site as shown (alphabetically) in Table 3.18-1. Unvegetated areas are also included in this table (developed land, railroad, and rock/large boulder outcrop), so that the entire proposed OWEF site is reflected in the total acreage. Each community is described following the table.

None of the communities is considered sensitive (e.g., an unusual plant assemblage) by the BLM according to the California Desert Conservation Area (CDCA) Plan. However, eight communities are considered sensitive (i.e., highly imperiled) by the state (California Department of Fish and Game [CDFG], 2010).[1]

Table 3.18-1. Vegetation Communities in the Proposed OWEF Site1

Vegetation Community/Land Cover	Rarity Ranking	Acreage
Allscale Scrub	S4	128.1
Badlands and Mudhills1	--	162.0
Big Galleta Grass Shrub-steppe2	S2	1.9
Brittle Bush Scrub2	S4	92.9
Cheesebush Scrub	S4	1,095.6
Creosote Bush Scrub	S5	938.9
Creosote Bush-Brittle Bush Scrub	S4	2,280.1
Creosote Bush-White Bursage Scrub	S5	5,877.3
Desert Agave Scrub2	S3	248.5
Desert Lavender Scrub2	S3	3.9
Developed1	--	82.9
Disturbed Habitat1	--	7.6
Fourwing Saltbush Scrub	S4	6.5
Mesquite Thicket2	S3.2	0.8
Ocotillo Tall Scrub1, 4	--	23.5
Railroad1	--	12.5
Rock/Large Boulder Outcrop1	--	4.8
Smoke Tree Woodland2	S3	380.9
Streambed1	--	15.3
Teddy Bear Cholla Scrub2, 5	S3	663.0
White Bursage Scrub2	S4	176.2
Wolf's Cholla Scrub3	--	232.3
	TOTAL	12,435.6

[1] Unvegetated areas are also included in this table, as are developed land and railroad, so that the entire proposed OWEF site is reflected in the total acreage.

[2] Considered sensitive (i.e., highly imperiled) by the CDFG (2010). Some associations are of high priority for inventory (CDFG 2010).

[3] Not in the Manual of California Vegetation (Sawyer et al. 2009).

[4] A mapping category used in ABDSP.

[5] In the Manual of California Vegetation as teddy bear cholla patches. Teddy bear cholla scrub was, however, a mapping category for ABDSP.

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[1] In CDFG 2010, for alliances with state ranks of S1-S3, all associations within them are also considered to be highly imperiled.

Allscale Scrub

Allscale (*Atriplex polycarpa*) is the dominant species in the shrub canopy. Associated shrub species include white bursage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), and creosote bush (*Larrea tridentata*). Herbaceous layer is variable based on soils and disturbance history. Common herbaceous species observed include desert Spanish-needle (*Palafoxia arida* var. *arida*), desert sunflower (*Geraea canescens*), few-flowered wreath plant (*Stephanomeria pauciflora*), Pierson's evening primrose (*Camissonia claviformis* var. *piersonii*), small-seed sandmat (*Chamaesyce polycarpa*), and Saharan mustard (*Brassica tournefortii*). Its landscape position is on terraces above the active floodplain. Allscale scrub is generally about 3 feet in height and occurs primarily in the northeastern part of the proposed OWEF site, in Palm Canyon Wash.

Badlands and Mudhills

This mapping category includes hillsides and ridges that are unvegetated or support sparse herbaceous cover and an occasional shrub. The species present varies with the location, soils, and disturbance history. Common herbaceous species include desert pot herb (*Calandrinia ambigua*), narrow-leaf oligomeris (*Oligomeris linifolia*), desert sunflower, woolly plantain (*Plantago ovata*), bristly langloisia (*Langloisia setosissima* var. *setosissima*), desert lily (*Hesperocallis undulata*), and Saharan mustard. The common occasional shrubs observed include creosote bush, white bursage, brittle bush (*Encelia farinosa* var. *farinosa*), and ocotillo (*Fouquieria splendens* subsp. *splendens*). The badlands and mudhills landform occurs at scattered locations in the proposed OWEF site, the largest of which is in the western part of the proposed OWEF site.

Big Galleta Grass Shrub-steppe

Big galleta grass (*Hilaria* [*Pleuraphis*] *rigida*) is the dominant or co-dominant plant species in the herbaceous layer. Within the proposed OWEF site, this habitat consists primarily of the big galleta grass and Saharan mustard. It occurs in the southwest portion of the proposed OWEF site on the dune apron and stabilized sand dunes, and in a few locations as narrow bands in canyon floors. Big galleta grass shrub-steppe is considered a sensitive vegetation community.

Brittle Bush Scrub

Brittle bush is dominant or co-dominant plant species in the shrub canopy. Associated shrub species include white bursage, teddy bear cholla (*Cylindropuntia bigelovii*), California barrel cactus (*Ferocactus cylindraceus*), ocotillo, pima rhatany (*Krameria erecta*), and creosote bush. Common herbaceous species observed include Pierson's evening primrose, pebble pincushion (*Chaenactis carphoclinia* var. *carphoclinia*), narrow-leaf cryptantha (*Cryptantha angustifolia*), cleft-leaf phacelia (*Phacelia crenulata* var. *minutiflora*), white-hair cryptantha (*Cryptantha maritima*), desert dandelion (*Malacothrix glabrata*), and Saharan mustard. Vegetation in this alliance is typically 1.5 to 3 feet in height. It is typically found on steep, rock strewn hillsides, alluvial fans, and bajadas. It occurs primarily in the southeastern portion of the proposed OWEF site with a few scattered locations in the southwestern portion of the proposed OWEF site. Brittle bush scrub is considered a sensitive vegetation community.

Cheesebush Scrub

Cheesebush is the dominant or co-dominant plant species in the shrub canopy. Associated shrub species include rush sweetbush (*Bebbia juncea* var. *aspera*), chuparosa (*Justicia californica*), desert lavender (*Hyptis emoryi*), California ephedra (*Ephedra californica*), Thurber's sandpaper plant (*Petalonyx thurberi* subsp. *thurberi*), and creosote bush. Common herbaceous species observed include few-flowered wreath plant, desert dandelion, small-seed sandmat, desert Spanish-needle, frost mat (*Achyronychia cooperi*), California croton (*Croton californicus*), desert thornapple (*Datura discolor*), and kidney-leaf buckwheat (*Eriogonum reniforme*). Occasionally emergent tree species are present such as smoke tree (*Psorothamnus spinosus*) and desert willow (*Chilopsis linearis* subsp. *arcuata*). The canopy for this scrub is 3 to 6 feet in height and occurs extensively in arroyos, channels, and washes throughout the proposed OWEF site.

Creosote Bush Scrub

Creosote bush is dominant or co-dominant plant species in the shrub canopy. Associated shrub species include white bursage, cheesebush, Palmer's coldenia (*Tiquilia palmeri*), and brittle bush. Occasional ocotillo plants are also present. Common herbaceous species observed include woolly plantain, bristly langloisia, broad-leaf gilia (*Alliciella adscensionis*) desert dandelion, brittle spineflower (*Chorizanthe brevicornu* var. *brevicornu*), and pebble pincushion. The shrub canopy for this scrub is 3 to 6 feet in height. It occurs on alluvial fans, bajadas, and drainages, and in scattered locations in the proposed OWEF site. The largest stands occur in the northeastern portion of the proposed OWEF site.

In addition to typical creosote bush scrub, two other creosote bush scrub associations were present in the study area. All three associations have creosote bush as a dominant species, but two of the associations have an additional dominant species (i.e., allscale and fourwing saltbush scrub) and are further described below.

Creosote Bush-Allscale Scrub. Creosote bush and allscale are the two co-dominant plant species in the shrub canopy. Associated shrub species include indigo bush (*Psorothamnus schottii*) and catclaw acacia (*Acacia greggii*). Smoke trees were also present in low density. Common herbaceous species observed include soft prairie clover (*Dalea mollissima*), California croton, desert calico (*Loeseliastrum matthewsii*), Yuma spurge (*Chamaesyce setiloba*), trailing windmills (*Allionia incarnata* var. *villosa*), plicate coldenia (*Tiquilia plicata*), desert chicory (*Rafinesquia neomexicana*), and red-stem filaree (*Erodium cicutarium*). The shrubs in this vegetation type are 3 to 6 feet in height. This association occurs in intermediate part of the floodplain, primarily in the northeastern part of the proposed OWEF site in Palm Canyon Wash.

Creosote Bush-Fourwing Saltbush Scrub. Creosote bush and fourwing saltbush (*Atriplex canescens* var. *canescens*) are co-dominant. Associated shrub species include cheesebush, white rhatany (*Krameria grayi*), and indigo bush. Emergent ocotillo is also present in low density. Common herbaceous species observed include desert sand verbena (*Abronia villosa* var. *villosa*), Spanish needles, Pierson's evening primrose, desert pincushion (*Chaenactis stevioides*), Yuma spurge, Arizona lupine (*Lupinus arizonicus*), desert sunflower, big galleta grass, and Saharan mustard. The shrub canopy for this scrub is 4.5 to 6 feet in height. This association occurs primarily in the northeastern part of the proposed OWEF site along Palm Canyon Wash.

Creosote Bush-Brittle Bush Scrub

Creosote bush and brittle bush are co-dominant in the shrub canopy. Associated shrub species include white bursage, California barrel cactus, pima rhatany, beavertail cactus (*Opuntia basilaris* var. *basilaris*), jojoba (*Simmondsia chinensis*), and California fagonia (*Fagonia laevis*). Emergent ocotillo is also present in places in low density. Common herbaceous species observed include white-hair cryptantha, pebble pincushion, brittle spineflower, woolly plantain, white tack-stem (*Calycoseris wrightii*), rigid spineflower (*Chorizanthe rigida*), cleft-leaf phacelia, desert trumpet (*Eriogonum inflatum*), desert filaree (*Erodium texanum*), brown turbans (*Malperia tenuis*), few-flowered wreath plant, desert lily, and red brome (*Bromus madritensis* subsp. *rubens*). The shrub canopy for this scrub is 3 to 6 feet in height. It occurs on alluvial fans and bajadas. This is the second most extensive in the proposed OWEF site.

Two associations were noted within this alliance. Both have creosote bush and brittle bush as dominant species. Besides the typical association, the second association also has ocotillo as a dominant species.

Creosote Bush-Brittle Bush-Ocotillo Scrub. This vegetation type is similar to creosote bush-brittle bush scrub with the exception that the ocotillo is co-dominant plant species with creosote bush and brittle bush.

Creosote Bush-White Bursage Scrub

Creosote bush and white bursage are the two co-dominant plant species in the shrub canopy. Associated shrub species include rush sweetbush, one or more species of cholla (*Cylindropuntia bigelovii*, *C. echinocarpa*, *C. ramosissima*, and *C. wolfii*), brittle bush, white rhatany, pima rhatany, indigo bush, desert agave (*Agave deserti*), and white dalea (*Psorothamnus emoryi* var. *emoryi*). Emergent ocotillo is also present in many places in low density. Common herbaceous species observed include Spanish needles, desert pincushion, desert dandelion, woolly plantain, several species evening primrose (*Camissonia claviformis* var. *piersonii* and *C. californica*), cleft-leaf phacelia, desert trumpet, several species of cryptantha (*C. angustifolia*, *C. micrantha*, and *C. maritima*), recurved pectocarya (*Pectocarya recurvata*), California croton, soft prairie clover, brittle spineflower, rigid spineflower, big galleta grass, desert calico, red brome and Saharan mustard. It occurs on alluvial fans and bajadas. The shrub canopy for this scrub is 3 to 6 feet in height. This is the most extensive scrub in the proposed OWEF site.

Four associations were noted within this alliance, all having creosote bush and white bursage as dominant species. Three of associations have an additional species (i.e., indigo bush or ocotillo) or growth form (succulents) that are also dominants and are further described below.

Creosote Bush-White Bursage-Indigo Bush Scrub. Indigo bush is a co-dominant plant species with creosote bush and white bursage. This association occurs along the upper terraces of Palm Canyon Wash, in the north-central part of the proposed OWEF site.

Creosote Bush-White Bursage Succulent Scrub. This vegetation type is similar to creosote bush-white bursage scrub with the exception that succulents, such as cholla (*Cylindropuntia bigelovii*, *C. echinocarpa*, *C. ramosissima*, and *C. wolfii*), California barrel cactus, and the stem succulent, ocotillo, are also relatively abundant. This association occurs primarily in the western and central parts of the proposed OWEF site.

Creosote Bush-White Bursage-Ocotillo Scrub. This vegetation type is similar to creosote bush-white bursage scrub with the exception that the ocotillo plant species is co-dominant with creosote bush and white bursage. This association occurs in rocky uplands.

Desert Agave Scrub

Desert agave is a co-dominant plant species in the shrub layer. Associated shrub species include creosote bush, white bursage, rush sweetbush, California barrel cactus, cholla (*Cylindropuntia bigelovii*, *C. echinocarpa*, *C. ramosissima*, and *C. wolfii*), brittle bush, Engelmann's hedgehog cactus (*Echinocereus engelmannii*), pima rhatany, and beavertail cactus. Emergent ocotillo is also present in low-to-moderate density. Common herbaceous species observed include desert pincushion, Spanish needles, several species of cryptantha (*C. angustifolia*, *C. micrantha*, and *C. pterocarya* var. *cycloptera*) and evening primrose (*Camissonia claviformis* var. *piersonii*, *C. californica*, and *C. boothi* subsp. *condensata*), desert lily, big galleta grass, Mojave desert star (*Monoptilon bellioides*), red brome and Saharan mustard. The shrub canopy for this scrub is less than 3 to 6 feet in height. This association occurs on alluvial fans and bajadas in the northwestern part of the proposed OWEF site. Desert agave scrub is considered a sensitive vegetation community.

Desert Lavender Scrub

Desert lavender is the dominant or co-dominant plant species in the shrub canopy. Associated shrub species include cheesebush, rush sweetbush, chuparosa, indigo bush, and creosote bush. Emergent catclaw acacia and desert willow are also present is very low densities. The shrub canopy for this scrub is 3 to 6 feet in height. This association occurs primarily in narrow, sandy washes. Desert lavender scrub is considered a sensitive vegetation community.

Developed

Portions of the study have been previously developed. This mapping category consists primarily of roads including Interstate (I-) 8, State Route (SR) 98, County Highway (CH) S2 (Imperial Highway), Shell Canyon Road, and two unnamed paved roads that connect a quarry north of the proposed OWEF site with either the I-8 frontage road at a point east of Ocotillo or CH S2. Developed areas include the paved road surface and maintained road shoulder.

Disturbed Habitat

Disturbed habitat consists of areas that have been previously been cleared of vegetation and that have remained unvegetated, sometimes due to ongoing disturbances (e.g., off road vehicles).

Fourwing Saltbush Scrub

Fourwing saltbush is the dominant or co-dominant plant species in the shrub canopy. Associated shrub species include white bursage, cheesebush, allscale, and creosote bush. Emergent honey mesquite (*Prosopis glandulosa* var. *torreyana*) is also present in several locations. The shrub canopy for this scrub is 3 to 6 feet in height. This vegetation type is present in the northeastern portion of the proposed OWEF site on alkaline, sandy soils.

Mesquite Thicket

Honey mesquite is dominant in the low tree canopy. Shrubs including allscale, rush sweetbush, cheesebush, white bursage, fourwing saltbush, and sandpaper plant may also be present. The tree canopy is generally less than 21 feet in height. Within the proposed OWEF site, this vegetation type occurs as small, dense patches of honey mesquite. It occurs primarily in the eastern part of Palm Canyon Wash within the proposed OWEF site. Mesquite thicket is considered a sensitive vegetation community.

Ocotillo Tall Scrub

Ocotillo is the dominant or co-dominant species present. Ocotillo occurs throughout the proposed OWEF site and is present in many vegetation communities. What differentiates this vegetation type is that ocotillo is clearly the most abundant species. Many shrub species may also be present including creosote bush, white bursage, brittle bush, white rhatany, California barrel cactus, Wolf's and teddy bear cholla, and indigo bush. Ocotillo may be as tall as 30 feet, but is typically 15 to 21 feet in height. Ocotillo tall scrub occurs on alluvial fans and bajadas in the west central part of the proposed OWEF site.

Railroad

Railroad tracks, which are currently not being used, snake through the southwestern part of the proposed OWEF site, and also traverse a section of the proposed OWEF site south of SR 98. The disturbance associated with railroad construction occurred many years ago, which has given native and naturalized species time to recolonize this area. Typically the adjacent vegetation is what is currently growing on the banks of the raised railroad bed and, in places, between the railroad ties. The construction of the railroad had other significant affects on the area, particularly in places where fill for the railroad directs what were once broad dynamic flood flows to culverts or trestles.

Rock/Large Boulder Outcrop

Rock/large boulder outcrop was used to indicate areas where there is limited vegetative cover due to very large boulders. In these areas the boulders are at least several feet across. Ocotillo, creosote bush, brittle bush, and Wolf's cholla occur in this area in very low densities. This mapping category occurs in the southern part of the proposed OWEF site near I-8.

Smoke Tree Woodland

Smoke tree is the dominant tree or tall shrub canopy species, with desert willow also occurring in the tree canopy. Understory shrubs include catclaw acacia, cheesebush, rush sweetbush, chuparosa, desert lavender, creosote bush, sandpaper plant, and indigo bush. Common herbaceous species observed include few-flowered wreath plant, small seed sandmat, kidney-leaf buckwheat, and desert Spanish needle. This association occurs in arroyos, intermittently flooded channels, and washes with sandy, well drained soils. Within the proposed OWEF site this association occurs in the larger drainages. In some places, such as the Palm Canyon Wash in the western part of the proposed OWEF site, this woodland occurs as a relatively dense and narrow stands. In the broader sections of Palm Canyon Wash in the northeastern part of the proposed OWEF site, this association is less dense and other species provide relative more cover than elsewhere in the proposed OWEF site. There is also a phase of this vegetation type that is relatively broad and dense, but is much more shrub like in stature than elsewhere. This phase occurs along Meyer Creek near east of the west bound section of I-8. Smoke tree woodland is considered a sensitive vegetation community.

Streambed

Streambed was used to map sections of washes that do not support any vegetation. This is likely due to periodic scouring and deep coarse soils, but may be accentuated by off road vehicle disturbance.

Teddy Bear Cholla Scrub

Teddy bear cholla is dominant plant species in the shrub canopy with white bursage, rush sweetbush, silver and Wolf's cholla, ocotillo, California barrel cactus, and white rhatany. Common herbaceous species observed include desert dandelion, desert pincushion, several species of cryptantha, woolly plantain, desert Spanish needle, desert trumpet, Saharan mustard and Mediterranean schismus (*Schismus barbatus*). Soils are coarse sands to loams. The shrub canopy is less than 6 feet in height. It occurs on alluvial fans, gentle to moderate slopes of rocky highlands. It occurs primarily in the central part of the proposed OWEF site. Teddy bear cholla scrub is considered a sensitive vegetation community.

White Bursage Scrub

White bursage is the dominant or co-dominant plant species in the shrub canopy. Associated shrub species include Palmer's coldenia, teddy bear cholla, Engelmann's hedgehog cactus, brittle bush, and beavertail cactus. Annual species observed include Pierson's evening primrose, desert Spanish needle, and Saharan mustard. Overall, this vegetation type is low growing (less than 3 feet in height) but emergent creosote bush and ocotillo may be present in low densities. This vegetation occurs on older washes and river terraces, alluvial fans and bajadas, rocky hills and partially stabilized and stabilized sand fields. Soil type is variable: sandy, clay-rich, calcareous, and may have desert pavement surfaces. It occurs in scattered locations within the proposed OWEF site. White bursage scrub is considered a sensitive vegetation community.

Wolf's Cholla Scrub

Wolf's cholla is dominant in the shrub canopy with white bursage, creosote bush, teddy bear cholla, brittle bush, rush sweetbush, ocotillo, California barrel cactus, jojoba, and fish-hook cactus (*Mammallaria dioica*). Common herbaceous species include Fremont's desert pincushion (*Chaenactis fremontii*), desert dandelion, desert trumpet, several species of cryptantha, and woolly plantain. The shrubs canopy is less than 6 feet in height. It occurs on alluvial fans, gentle to moderate slopes of rocky highlands. Soils are coarse sands to loams. It occurs in the southwestern part of the proposed OWEF site.

3.18.1.2 Invasive, Noxious Weeds

Weeds are species of invasive plants of concern to the California Invasive Plant Council (Cal-IPC) or the BLM. A noxious weed is any plant designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife or property (BLM, 2010). Invasive plants include not only noxious weeds but also other plants that are not native to this country or to the area where they are growing (BLM, 2010). BLM considers plants invasive if they have been introduced to an environment where they did not evolve (BLM, 2010). Invasive, noxious weeds are of particular concern in wild lands because of their potential to degrade habitat and disrupt the ecological functions of an area (Cal-IPC, 2006) and can produce significant changes to vegetation composition and/or structure or ecosystem function (BLM, 2010). Specifically, noxious weeds can alter habitat structure, increase fire frequency and intensity, decrease forage (including for special status species), exclude native plants, and decrease water availability for both plants and wildlife. Soil disturbance creates conditions favorable to the introduction of new weeds or the spread of existing populations. Construction equipment, fill, and mulch can act as vectors introducing weeds into an area.

Of the 222 plant species that were documented during the 2010 special status plant species surveys (see Section 3.18.1.3), 14 species were non-native. These species include Saharan mustard, Russian thistle (*Salsola tragus*), nettle-leaf goosefoot (*Chenopodium murale*), prickly-lettuce (*Lactuca serriola*), jointed charlock (*Raphanus raphanistrum*), London rocket (*Sisymbrium irio*), red-stem filaree, athel tamarisk (*Tamarix aphylla*), puncturevine (*Tribulus terrestris*), and five annual grasses including Mediterranean schismus, slender wild oat (*Avena barbata*), red brome, six-weeks fescue (*Vulpia bromoides*), and rattail fescue (*Vulpia myuros*).

Five of these species are listed in the Cal-IPC Invasive Plant Inventory Database for the Sonoran Desert region (Cal-IPC, 2006; Table 3.18-2); the remaining species are not included in the inventory database for the Sonoran Desert region. None of these species is included on the Federal Weed List (7 CFR 360; California Department of Food and Agriculture, 2011a), nor is any, except puncturevine, on the Noxious Weed List—Section 4500 of the Food and Agriculture Code (California Department of Food and Agriculture, 2011b).

Table 3.18-2. Invasive, Noxious Weeds Observed in the Proposed OWEF site

Scientific Name Common Name	Overall Cal-IPC Rating*	Cal-IPC Level of Invasiveness	Section 4500 of the California Department of Food and Agriculture Code Weed Rating
Brassica tournefortii Saharan mustard	High	Severe	NA
Bromus madritensis subsp. rubens red brome	High	Moderate	NA
Vulpia myuros rattail fescue	Moderate	Moderate	NA
Erodium cicutarium red-stem filaree	Limited	Limited	NA
Salsola tragus Russian thistle	Limited	Limited	NA
Tribulus terrestris Puncturevine	NA	NA	C

*__High__ – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Moderate – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

Limited – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

C - A pest of known economic or environmental detriment and, if present in California, it is usually widespread. C-rated organisms are eligible to enter the state as long as the commodities with which they are associated conform to pest cleanliness standards when found in nursery stock shipments. If found in the state, they are subject to regulations designed to retard spread or to suppress at the discretion of the individual county agricultural commissioner. There is no state enforced action other than providing for pest cleanliness (California Department of Food and Agriculture, 2011c).

The five species of invasive, noxious weeds are recognized at some level for their invasiveness. Two other non-native species, Mediterranean schismus and jointed charlock, are not listed as invasive but are suitable for inclusion for other reasons. Mediterranean schismus is suggested because it is widespread and appears invasive in the proposed OWEF site. Jointed charlock occurs in one location immediately adjacent to SR 98, but given its location it may have only recently been introduced to the proposed OWEF site but may prove invasive.

Saharan mustard is widespread over the proposed OWEF site but varies in abundance. It is most abundant in sandy substrate particularly where there is a history of human and or natural disturbances.

Red brome is infrequent in the proposed OWEF site. It was noted in at least three vegetation types including Wolf's cholla, creosote bush-white bursage, and brittle bush scrubs. Although these vegetation types cover a significant portion of the proposed OWEF site, red brome does not comprise a significant constituent in the cover of any of these vegetation types. Stands of red brome typically consist of less than five plants, and the stands are widely scattered.

Rattail fescue was very rare in the proposed OWEF site and was only observed in a small handful of locations.

Red-stem filaree is relatively widespread but occurs in low densities. It was observed in big galleta grass shrub-steppe and four scrubs, including creosote bush-white bursage, creosote bush-white bursage scrub, cheesebush, and brittle bush. Nowhere in the proposed OWEF site does this species dominate the landscape. It typically occurs in diffuse numbers. This is the third most abundant weed in the proposed OWEF site.

Russian thistle occurs in very low numbers in the proposed OWEF site. It was noted in one vegetation type, cheesebush scrub, but only rarely.

Mediterranean schismus is widespread in the proposed OWEF site and occurs in many vegetation communities including smoke tree woodland, badlands, and these scrubs: creosote bush-white bursage, creosote bush-white bursage scrub, cheesebush, white bursage, creosote bush-brittle bush. It is most abundant in sandy substrate and uncommon elsewhere. It is the second most abundant weed in the proposed OWEF site.

Jointed charlock is known from one location, on the shoulder of SR 98. Unlike the other invasives that occur in low numbers, jointed charlock only occurs next to the road. This indicates it may have only recently become established and its invasiveness cannot be ascertained. Therefore, it is considered potentially invasive.

Once one of California's most troublesome weeds, puncturevine is currently controlled by stem weevil (*Microlarinus lypriformis*) and seed weevil (*M. lareynii*) introduced from Italy as biocontrol agents in 1961. The habitats for this plant species include disturbed places, roadsides, railways, cultivated fields, yards, waste places, and walkways. It grows best on dry sandy soils, but tolerates most soil types. It is intolerant of freezing temperatures. One puncturevine plant was observed during all of the special status plant species surveys for the proposed OWEF. It was growing in a wash approximately 0.5-mile north of Interstate 8 and just west of Sugarloaf Mountain. This individual plant was collected and properly disposed of off site by the botanist that observed it in fall 2010.

The other species discussed here are essentially naturalized, and their distribution and abundance is not expected to change significantly without some outside influence (e.g., disturbance associated with establishment of a wind energy facility). Saharan mustard may be an exception to this as it has been increasing its distribution throughout southern California's deserts independent of any project-related disturbances.

3.18.1.3 Special Status Plant Species

Special status plant species surveys were conducted during the spring, fall, and winter of 2010, and winter and spring 2011 to document the presence, abundance, and status of special status plants within the proposed OWEF site. The spring 2010 surveys focused on the footprint of a preliminary project design with a 500-foot buffer from all project features (e.g., turbine locations, access roads, staging areas, borrow sites, and the operations and maintenance facility). The preliminary project design was a build-out of the majority of the proposed OWEF site. The fall 2010 and winter 2010/2011 survey covered the footprint of the redesigned project footprint with an approximately 500-foot buffer from revised project features. The spring 2011 surveys focused on an additional 220 acres due to project footprint changes.

The surveys were conducted by walking transects such that 100 percent visual coverage was achieved. The area surveyed totaled approximately 8,000 acres in spring 2010, approximately 7,000 acres in fall 2010 and winter 2010/2011, and approximately 220 acres in spring 2011. Each botanist compiled a species list and documented the location and number of special status plant species on an aerial photo, with a GPS, and with photographs. Each botanist also kept a GPS track log during the surveys to document their survey routes and documented the locations of invasive, noxious weed species encountered.

Data were collected and submitted in accordance with the BLM's Survey Protocols for NEPA/Endangered Species Act (ESA) Compliance for BLM Special Status Plant Species (BLM, 2009) and with the CDFG's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG, 2009).

Prior to conducting the surveys, a preliminary review of the California Natural Diversity Database (CDFG, 2010), California Native Plant Society (CNPS, 2011), and CALFLORA (2010) databases was conducted to compile a list of 52 special status plant species whose potential to occur in the proposed OWEF site was considered.

Special status plant species are those that have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and special status species are of relatively limited distribution and typically require unique habitat conditions. Special status plant species are defined as meeting one or more of the following criteria:

1. Listed as threatened or endangered or candidates for future listing as threatened or endangered under California ESA or federal ESA;
2. Listed as species of concern by CDFG;
3. Plants "presumed extinct in California" (California Rare Plant Rank [CRPR] 1A), plants ranked as "rare or endangered in California" (CRPR 1B and 2), as well as CRPR 3 and 4 species;
4. Plants listed as rare under the California Native Plant Protection Act;
5. Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region or is so designated in local or regional plans, policies, or ordinances; or
6. Any other species receiving consideration during environmental review under CEQA.

The BLM designates sensitive species as those requiring special management considerations to promote their conservation and reduce the likelihood and need for future listing under ESA. BLM Sensitive Species (BLM, 2004) include all Federal Candidate and Federally Delisted species which were so designated within the last 5 years, and CRPR 1B species that occur on BLM lands. For the purposes of this analysis, all BLM Sensitive Species are considered to be special-status species.

Table 3.18-2 lists all special status plant species evaluated during the analysis that are present or whose potential occurrence in the OWEF proposed OWEF site was considered. Special status species observed during the 2010 field surveys are indicated by bold-face type.

A total of 11 special status plant species were observed, none of which are state or federally listed. Special status plant species that were observed are as follows and below.

- Little San Bernardino Mountains linanthus (*Linanthus maculatus*)
- Haydon's lotus (*Lotus haydonii*)
- Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*)
- Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)
- Brown turbans (*Malperia tenuis*)
- Hairy stick-leaf (*Mentzelia hirsutissima*)
- Wolf's cholla *(Cylindropuntia wolfii)*
- Deboltia (*Cynanchum utahense*)
- Long-lobed four o'clock (*Mirabilis tenuiloba*)
- Thurber's pilostyles (*Pilostyles thurberi*)
- Desert unicorn plant (*Proboscidea althaeifolia*)

Little San Bernardino Mountains linanthus (*Linanthus maculatus*)

Status: --/--; CRPR 1B.2; BLM Sensitive

Distribution: Riverside, San Bernardino, and San Diego counties. Known primarily from the southwestern edge of the Mojave Desert and northwestern edge of the Colorado Desert.

Habitat and Biology: A small, annual herb that grows in very loose, soft sand on low benches along washes in Mojave and Sonoran desert scrub from 600 to 6,900 feet AMSL. Blooming period is March to May (CNPS, 2011).

Status in Proposed OWEF site: Approximately 100 individuals were observed in cheesebush scrub in the western portion of the proposed OWEF site, on the side slopes of the railroad tracks. Cheesebush (*Ambrosia salsola*) was present in the vicinity but not intermixed with the linanthus. Although the numbers of individuals observed is relatively small, the population is healthy and does not appear to be compromised by OHV activity or other disturbance.

Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site*

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
Abronia villosa var. aurita Chaparral sand verbena	Federal – None State – None BLM – Sensitive CRPR – 1B.1	Annual herb growing on sandy floodplains or flats in generally inland, arid areas of sage scrub and open chaparral; 240-4,800 ft.	January to September	None. Not known from desert. Previous records of it in vicinity were misidentified.	Not observed.
Amaranthus watsonii Watson's amaranth	Federal – None State – None BLM – None CRPR – 4.3	Annual herb that occurs in Mojavean and Sonoran desert scrubs; 60-5,100 ft.	April to September	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Astragalus insularis var. harwoodii **Harwood's milk-vetch**	**Federal – None** **State – None** **BLM – None** **CRPR – 2.2**	**Annual herb that occurs in sand and gravelly desert dune areas; <1,000 ft.**	**January to May**	**Present.**	**Approximately 32 individuals were observed in creosote bush scrub, primarily in the northeast portion of the survey area.**
Ayenia compacta California ayenia	Federal – None State – None BLM – None CRPR – 2.3	Perennial herb occurring in dry, rocky canyons in Sonoran desert scrub; 450-3,300 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Bursera microphylla Elephant tree	Federal – None State – None BLM – None CRPR – 2.3	Deciduous tree found on rocky slopes in Sonoran desert scrub; 600-2,100 ft.	June to July	Moderate. Species has been documented in the vicinity. Although portions of the proposed OWEF site support suitable rocky habitat, this species would likely have been observed if present.	Not observed.
Calliandra eriophylla Pink fairy-duster	Federal – None State – None BLM – None CRPR – 2.3	Deciduous shrub occurring in sandy or rocky areas in Sonoran desert scrub; 380-4,500 ft.	January to March	Moderate. Although the proposed OWEF site supports suitable habitat, this species would likely have been observed if present.	Not observed.
Camissonia arenaria Sand evening primrose	Federal – None State – None BLM – None CRPR – 2.3	Annual or bushy perennial found in sandy or rocky areas in Sonoran desert scrub; 0-3,000 ft.	November to May	Moderate. Although the proposed OWEF site supports suitable habitat, this species would likely have been observed if present.	Not observed.
Castela emoryi Crucifixion thorn	Federal – None State – None BLM – None CRPR – 2.3	Deciduous shrub that occurs in Sonoran desert scrub, on playas, and in gravelly soils; 280-2,000 ft.	April to July	Moderate. Although the proposed OWEF site supports suitable habitat, this species would likely have been observed if present.	Not observed.

Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site*

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
Chaenactis carphoclinia var. peirsonii Pierson pincushion	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Annual herb occurring in sandy areas in Sonoran desert scrub; 0-1,500 ft.	March to April	Moderate. Proposed OWEF site supports suitable habitat.	Not observed.
Chamaesyce abramsiana Abram's chamaesyce	Federal – None State – None BLM – None CRPR – 2.2	Annual herb found in sandy soils in desert scrub; 0-2,800 ft.	September to November	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Chamaesyce platysperma Flat-seeded spurge	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Annual herb that occurs on desert dunes and in Sonoran desert scrub with sandy soil.	February to September	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Colubrina californica Las Animas colubrina	Federal – None State – None BLM – None CRPR – 2.3	Deciduous shrub that occurs in creosote bush scrub; <3,000 ft.	April to June	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Condalia globosa var. pubescens Spiny abrojo	Federal – None State – None BLM – None CRPR – 4.2	Deciduous shrub that occurs in Sonoran desert scrub; 450-3,000 ft.	March to May	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Coryphantha alversonii Foxtail cactus	Federal – None State – None BLM – None CRPR – 4.3	A California-endemic stem succulent that occurs in Sonoran desert scrub, in sandy or rocky areas, usually granitic; 225-4,500 ft.	April to June	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Cryptantha costata Ribbed crypthantha	Federal – None State – None BLM – None CRPR – 4.3	Annual herb associated with sand dunes and desert scrub; -200 – 1,640 ft.	February to May	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Cryptantha holoptera Winged crypthantha	Federal – None State – None BLM – None CRPR – 4.3	Annual herb associated with desert scrub habitats; 325 – 5,500 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Croton wigginsii Wiggins' croton	Federal – None State – None BLM – None CRPR – 2.2	Shrub or subshrub associated with sand dunes in Sonoran desert scrub; 150-300 ft.	March to May	Low. Although portions of the proposed OWEF site support suitable dune habitat, this species is known only from east of El Centro.	Not observed.

Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site*

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
Cylindropuntia wolfii **Wolf's cholla**	**Federal – None** **State – None** **BLM – None** **CRPR – 4.3**	**A stem succulent occurring in dry places above valley floors in Sonoran desert scrub; 300-3,600 ft.**	**March to May**	**Present.**	**Approximately 24,735 individuals observed in numerous desert scrub habitats throughout the entire western half of the proposed OWEF site and north-central portion of the proposed OWEF site.**
Cylindropuntia wigginsii Wiggins' cholla	Federal – None State – None BLM – None CRPR – 3.3	A stem succulent occurring in sandy areas in Sonoran desert scrub; 90-2,700 ft.	March	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Cynanchum utahense **Deboltia**	**Federal – None** **State – None** **BLM – None** **CRPR – 4.2**	**Dry, sandy, or gravelly areas in Sonoran desert scrub and Mojavean desert scrub are general habitats utilized by this vine-like perennial herb. Elevation range is 450 to 4,300 ft.**	**April to June**	**Present.**	**Approximately 557 individuals observed in sandy washes occurring within various desert scrub habitats, primarily in the western portion of the proposed OWEF site, in addition to the southeastern corner.**
Delphinium parishii ssp. subglobosum Oceanblue delphinium	Federal – None State – None BLM – None CRPR – 4.3	Dry, stony fans and slopes associated with creosote bush scrub, chaparral, or pinyon-juniper woodland in open Sonoran desert scrub; 1,800-5,400 ft.	March to June	Present.	Not observed.
Ditaxis serrata var. californica California ditaxis	Federal – None State – None BLM – None CRPR – 3.2	Perennial herb found in rocky desert chaparral and Sonoran desert scrub; <3,000 ft.	March to December	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Eucnide rupestris Annual rock nettle	Federal – None State – None BLM - None CRPR – 2.2	Annual herb that occurs in Sonoran desert scrub on rock or talus substrate; 1,500-1,800 ft.	December to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Helianthus niveus ssp. tephrodes Algodones Dunes sunflower	Federal – None State – Endangered BLM - Sensitive CRPR – 1B.2	Shrubby perennial found in open, sandy places, dunes; 150-300 ft.	September to May	Low. Although portions of the proposed OWEF site support suitable dune habitat, this species is known only from east of El Centro.	Not observed.
Horsfordia alata Pink velvetmallow	Federal – None State – None BLM - None CRPR – 4.3	Shrub occurring in rocky canyons and washes; 300-1,800 ft.	February to December	Low to moderate. Some suitable habitat present in the proposed OWEF site.	Not observed.

Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site*					
Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
Horsfordia newberryi Newberry's velvetmallow	Federal – None State – None BLM - None CRPR – 4.3	Shrub occurring in creosote bush scrub; <2,400 ft.	February to December	Moderate. Species has been documented in the vicinity. Suitable habitat occurs in the proposed OWEF site; however, species would likely have been observed if present.	Not observed.
Imperata brevifolia California satintail	Federal – None State – None BLM – None CRPR – 2.1	Rhizomatous grass found in chaparral, coastal scrub, desert scrub, alkaline meadows and seeps, and riparian scrub; 0-1,500 ft.	September to May	Low. This species grows in arid areas where water is available. No suitable habitat occurs in the proposed OWEF site.	Not observed.
Ipomopsis effuse Baja California ipomopsis	Federal – None State – None BLM – None CRPR – 2.1	Annual herb that occurs in chaparral and Sonoran desert scrub (alluvial fan) in sandy substrate; <300 ft.	April to June	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Ipomopsis tenuifolia Slender-leaved ipomopsis	Federal – None State – None BLM – None CRPR – 2.3	Perennial herb that occurs in chaparral, pinyon and juniper woodlands, and Sonoran desert scrub on rocky or gravelly soil between 300 and 3,600 ft.	March to May	Moderate. Suitable habitat occurs in the proposed OWEF site; however, species would likely have been observed if present.	Not observed.
Juncus cooperi Cooper's rush	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found in alkaline areas, meadows, and seeps; <5,000 ft.	April to May	Low. Suitable habitat not present in the proposed OWEF site.	Not observed.
Linanthus maculates **Little San Bernardino Mountains linanthus**	**Federal – None** **State – None** **BLM – Sensitive** **CRPR – 1B.2**	**A small annual herb that grows in very loose, soft sand on low benches along washes in Mojave and Sonoran desert scrub from 600 to 6,900 ft.**	**March to May**	**Present.**	**Approximately 100 individuals were observed in cheesebush scrub in the western portion of the proposed OWEF site, on the side slopes of the railroad tracks.**
Lotus haydonii **Haydon's lotus**	**Federal – None** **State – None** **BLM – None** **CRPR – 2.3**	**A diminutive perennial herb that grows on dry, rocky slopes in Sonoran desert scrub between 1,500 and 3,600 ft.**	**January to June**	**Present.**	**Approximately 19 individuals were observed primarily in rocky habitat in the southwestern portion of the proposed OWEF site.**
Lupinus excubitus var. medius **Mountain Springs bush lupine**	**Federal – None** **State – None** **BLM – Sensitive** **CRPR – 1B.3**	**Perennial subshrub that occurs in sandy desert washes in pinyon and juniper woodland and Sonoran desert scrub between 1,300-4,100 ft.**	**March to May**	**Present**	**A single individual was observed along the edge of the central portion of the proposed OWEF site.**
Lycium parishii Parish's desert-thorn	Federal – None State – None BLM – None CRPR – 2.3	Shrub found on sandy to rocky slopes, canyons; <3,000 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.

Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site*

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
Lyrocarpa coulteri var. palmeri Coulter's lyrepod	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found on dry slopes, gravelly flats, and washes in Sonoran desert scrub; <1,800 ft.	December to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Malperia tenuis **Brown turbans**	**Federal – None** **State – None** **BLM – None** **CRPR – 2.3**	**Annual herb that occurs in Sonoran desert scrub with sandy soil; <1,500 ft.**	**March to April**	**Present.**	**Approximately 846,173 individuals observed in various desert scrub habitats in the eastern and western portions of the proposed OWEF site.**
Matelea parvifolia Spearleaf	Federal – None State – None BLM – None CRPR – 2.3	Perennial herb that occurs in desert scrub habitats between 1,450 and 3,600 ft.	March to May	Low. Suitable desert scrub habitat is present but the proposed OWEF site is below the known elevation range of this species.	Not observed.
Mentzelia hirsutissima **Hairy stick-leaf**	**Federal – None** **State – None** **BLM – None** **CRPR – 2.3**	**Occurs in rocky Sonoran desert scrub between 0 and 2,100 ft.**	**March to May**	**Present.**	**Approximately 89 individuals observed in creosote and brittlebush scrubs occurring in the central portion of the proposed OWEF site.**
Mimulus aurantiacus var. *aridus* Bush monkeyflower	Federal – None State – None BLM – None CRPR – 4.3	Occurs in rocky chaparral and Sonoran desert scrub between 2,450 and 3,900 ft.	April to July	Low. Species has been documented in the vicinity. Would have been observed if present.	Not observed.
Mirabilis tenuiloba **Long-lobed four o'clock**	**Federal – None** **State – None** **BLM – None** **CRPR – 4.3**	**A perennial herb found in Sonoran desert scrub on sandy, gravelly, or rocky slopes. Known sites are xeric (very dry) but relatively well-protected near boulders. Elevation range is 900 to 3,300 ft.**	**March to May**	**Present.**	**Approximately 308 individuals observed primarily in the southeastern corner of the proposed OWEF site along with other scattered occurrences in the central and western portions of the proposed OWEF site.**
Nemacaulis denudata var. gracilis Slender woollyheads	Federal – None State – None BLM – None CRPR – 2.2	Annual herb that occurs in coastal dunes, desert dunes, and Sonoran desert scrub between 150 and 1,200 ft.	March to May	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Palafoxia arida var. gigantean Giant Spanish-needle	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Annual/perennial herb found on desert dunes; 45-300 ft.	February to May	Low. This species is known only from east of El Centro.	Not observed.

Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site*					
Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
Penstemon clevelandii var. conatus San Jacinto beardtongue	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found on rocky hillsides and in rock crevices in creosote bush scrub, juniper/pinyon woodland, and chaparral; 1,200 to 4,500 ft.	March to May	Low to moderate. Some suitable habitat in the proposed OWEF site.	Not observed.
Penstemon thurberi Thurber's beardtongue	Federal – None State – None BLM – None CRPR – 4.2	Perennial herb found on sandy and gravelly slopes and mesas in chaparral, pinyon/juniper woodland, and Sonoran desert scrub; 1,500 to 3,600 ft.	May to July	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Pholisma sonorae Sand food	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Parasitic perennial herb found on desert dunes; 0-600 ft.	April to June	Low. This species is known only from east of El Centro.	Not observed.
Pilostyles thurberi **Thurber's pilostyles**	**Federal – None** **State – None** **BLM – None** **CRPR – 4.3**	**Fleshy, parasitic plant found in Sonoran desert scrub flatlands; <1,000 ft.**	**January**	**Present.**	**Observed on 318 host plants (white dalea) in a variety of scrub communities in the central and western portions of the proposed OWEF site.**
Proboscidea althaeifolia **Desert unicorn plant**	**Federal – None** **State – None** **BLM – None** **CRPR – 4.3**	**Perennial herb found in creosote bush scrub and sandy desert scrub; 450-3,000 ft.**	**May to August**	**Present.**	**Six individuals observed in the northeastern portion of the survey area.**
Salvia greatae Orocopia sage	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Evergreen shrub found in desert scrub habitats on alluvial slopes; <2,500 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site; however, species would likely have been observed if present.	Not observed.
Senna covesii Coves' senna	Federal – None State – None BLM – None CRPR – 2.2	Perennial herb found in Sonoran desert scrub in dry sandy washes and on slopes; 900-3,100 ft.	March to June	Moderate. Suitable habitat in the proposed OWEF site.	Not observed.
Spermolepis echinata Bristly scaleseed	Federal – None State – None BLM – None CRPR – 2.3	Annual herb growing in rocky, desert terrain or on sandy flats; 180-4,500 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Tetracoccus hallii Holly-leaved spurge	Federal – None State – None BLM – None CRPR – 4.3	Deciduous shrub found in creosote bush scrub; <3,600 ft.	January to May	Moderate. Suitable habitat occurs in the proposed OWEF site; however, species would likely have been observed if present.	Not observed.

Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site*

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
Teucrium cubense ssp. depressum Dwarf germander	Federal – None State – None BLM – None CRPR – 2.2	Annual herb found on desert dunes, on the edges of playas, and in Sonoran desert scrub; <1,200 ft.	March to May	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Wislizenia refracta ssp. palmeri Palmer's jack-ass clover	Federal – None State – None BLM – None CRPR – 2.2	Deciduous shrub found in chenopod scrub, on desert dunes, in Sonoran desert scrub, and in Sonoran thorn woodland; <1,000 ft.	January to December	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Wislizenia refracta ssp. refracta Jack-ass clover	Federal – None State – None BLM – None CRPR – 2.2	An annual herb occurring in desert scrub, on playas, on desert dunes, and particularly in sandy washes, alkaline flats, and along roadsides; 1,800-2,400 ft.	April to November	Low. Suitable habitat occurs in the proposed OWEF site, but OWEF is 50 miles south of nearest known population.	Not observed.
Xylorhiza cognate Mecca-aster	Federal – None State – None BLM – Sensitive CRPR – 1B.2	A California-endemic perennial herb found in arid canyons, washes, and creosote bush scrub; <1,200 ft.	January to June	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
Xylorhiza orcuttii Orcutt's woody-aster	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Perennial herb that occurs in Sonoran desert scrub; <1,000 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.

*Species in **bold-face** type were observed. See Section 3.18.1.3 for a description of the areas surveyed for special status plant species.

Status Codes:

California Rare Plant Rank

List 1B = Rare, threatened, or endangered in California and elsewhere
List 2 = Rare, threatened, or endangered in California but more common elsewhere
List 3 = Plants which need more information
List 4 = Limited distribution – a watch list
0.1 = Seriously threatened in California (high degree/immediacy of threat)
0.2 = Fairly threatened in California (moderate degree/immediacy of threat)
0.3 = Not very threatened in California (low degree/immediacy of threats or no current threats known)

BLM

BLM Sensitive = Species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. BLM Sensitive species also include all Federal Candidate species and Federal Delisted species which were so designated within the last 5 years and CRPR 1B plant species that occur on BLM lands. http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.43545.File.dat/6840.pdf.

Haydon's lotus (*Lotus haydonii*)

Status: --/--; CRPR 1B.3; BLM Sensitive

Distribution: Eastern San Diego and Imperial counties and Baja California, Mexico.

Habitat and Biology: A diminutive, perennial herb that grows on dry, rocky slopes in Sonoran desert scrub between 1,500 and 3,600 feet AMSL. Blooms January to June (CNPS, 2011).

Status in Proposed OWEF site: Approximately 19 individuals of Haydon's lotus (also known as pygmy lotus) were observed primarily in rocky habitat in the southwestern portion of the proposed OWEF site. The species was found in a variety of desert scrub habitats with desert lavender, brittle bush, Wolf's cholla, cheesebush, and jojoba among other species. This species occurs in a scattered distribution in the southwest portion of the proposed OWEF site, and the overall occurrence quality and site viability ranges from good to excellent. Most occurrences are not under threat by OHV activity due to the rocky habitat; however, a handful of records located on the periphery of the rocky slopes could be subject to OHV disturbance. Some occurrences are within areas where Saharan mustard, an invasive, noxious weed, is present.

Mountain springs bush lupine (*Lupinus excubitus* var. *medius*)

Status: --/--; CRPR 1B.3; BLM Sensitive

Distribution: Eastern San Diego (near I-8) and Imperial counties and Baja California, Mexico.

Habitat and Biology: A perennial subshrub that grows in sandy desert washes in pinyon and juniper woodland and Sonoran desert scrub between 1,300 and 4,100 feet AMSL. Blooms March to May (CNPS, 2011).

Status in Proposed OWEF site: A single individual was observed along the edge of the central portion of the proposed OWEF site.

Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)

Status: --/--; CRPR 2.2

Distribution: Central-eastern San Diego, eastern Riverside, and Imperial counties; Arizona; Sonora, Mexico.

Habitat and Biology: Sonoran desert scrub in gravelly, sandy washes or dunes below 1,000 feet AMSL is the preferred habitat of this annual herb. Blooms January to May (CNPS, 2011).

Status in Proposed OWEF site: Approximately 32 individuals were observed in creosote bush scrub, primarily in the northeast portion of the proposed OWEF site. Other species observed in the vicinity include creosote bush, cheesebush, Thurber's sandpaper plant, desert sand verbena (*Abronia villosa* var. *villosa*), allscale, Palmer's coldenia, and Saharan mustard. The population observed is small, and the overall health is fair. A paved road is located near the occurrences of this species, and OHV activity and substantial cover by Saharan mustard, an invasive, noxious weed, also have been documented.

Brown turbans (*Malperia tenuis*)

Status: --/--; CRPR 2.3

Distribution: Eastern San Diego and Imperial counties and Baja California, Mexico.

Habitat and Biology: An annual herb that occurs in Sonoran desert scrub at elevations less than 1,500 feet, growing on arid slopes with shallow soils as well as rocky surface rubble with few large boulders and little competition from shrubs. Blooms March through April (CNPS, 2011).

Status in Proposed OWEF site: Approximately 846,173 individuals observed in various desert scrub habitats in the eastern and western portions of the proposed OWEF site, with the vast majority of individuals found in the southeastern portion of the proposed OWEF site, often in areas with abundant surface gravel or cobbles. Other species observed in the vicinity include brittlebush, creosote bush, ocotillo, Mohave desert star, narrow-leaf oligomeris, pebble pincushion, and woolly plantain. The proposed OWEF site supports a robust population of this species, particularly in the southeast, and the overall health of the population is excellent. Small numbers of this species are subject to disturbance by OHVs and competition with Saharan mustard, an invasive, noxious weed, in the northeast portion of the proposed OWEF site, in the same vicinity as the Harwood's milk-vetch population.

Hairy stick-leaf (*Mentzelia hirsutissima*)

Status: --/--; CRPR 2.3

Distribution: Eastern San Diego and Imperial counties and Baja California, Mexico.

Habitat and Biology: An annual herb found below 2,000 feet AMSL in low Sonoran desert scrub. Grows on rocky hillsides and desert mesas. Blooms March to May (CNPS, 2011).

Status in Proposed OWEF site: Approximately 89 individuals observed in creosote and brittle bush scrubs occurring in the central portion of the proposed OWEF site. Associated species include creosote bush, brittlebush, cheesebush, rush sweetbush, indigo bush, California barrel cactus, and long-lobed four o'clock. Overall health of the population is good, with only minor threats by OHV activity in some areas, as well as competition with Saharan mustard, an invasive, noxious weed.

Wolf's cholla (*Cylindropuntia wolfii*)

Status: --/--; CRPR 4.3

Distribution: Eastern San Diego and Imperial counties and Baja California, Mexico.

Habitat and Biology: This large stem succulent grows in Sonoran desert scrub, usually on alluvial fans or rocky slopes in open terrain, at elevations between 300 and 3,600 feet AMSL. Blooms March to May (CNPS, 2011).

Status in Proposed OWEF site: Approximately 24,735 individuals observed in numerous desert scrub habitats throughout the entire western half of the proposed OWEF site and north-central portion of the proposed OWEF site. Associated species include creosote bush, brittlebush, ocotillo, teddy bear cholla, jojoba, desert lavender, desert agave, indigo bush, pencil cholla (*Cylindropuntia ramosissima*), and silver cholla (*C. echinocarpa*). The population is in good to excellent condition, and individuals are widespread and abundant within the proposed OWEF site. Portions of the population are subject to disturbance by OHVs and competition by Saharan mustard, an invasive, noxious weed.

Deboltia (*Cynanchum utahense*)

Status: --/--; CRPR 4.2

Distribution: Southeastern California, Nevada, Utah, and Arizona.

Habitat and Biology: Dry, sandy, or gravelly areas in Sonoran desert scrub and Mojavean desert scrub are general habitats utilized by this vine-like perennial herb. Elevation range is 450 to 4,300 feet AMSL. Blooms April to June (CNPS, 2011).

Status in Proposed OWEF site: Approximately 557 individuals observed in sandy washes occurring within various desert scrub habitats, primarily in the western portion of the proposed OWEF site, in addition to the southeastern corner. This twining species was primarily observed growing on big galleta grass, few-flower wreath plant, white rhatany, cheesebush, and California fagonia. Populations within the proposed OWEF site generally occur in concentrated locations where suitable sandy or gravelly wash habitat is present and are in good to excellent condition.

Long-lobed four o'clock (*Mirabilis tenuiloba*)

Status: --/--; CRPR 4.3

Distribution: Imperial, Riverside, and San Diego counties; Arizona; Baja California, Mexico.

Habitat and Biology: A perennial herb found in Sonoran desert scrub on sandy, gravelly, or rocky slopes. Known sites are xeric (very dry) but relatively well-protected near boulders. Elevation range is 900 to 3,300 feet AMSL. Blooms March to May (CNPS, 2011).

Status in Proposed OWEF site: Approximately 308 individuals observed primarily in the southeastern corner of the proposed OWEF site along with other scattered occurrences in the central and western portions of the proposed OWEF site. Associated species include cheesebush, desert lavender, brittle bush, rush sweetbush, smoketree, catclaw acacia, and chuparosa. Overall, the population is in good condition, although portions of the population are threatened by OHV activity and competition with Saharan mustard, and invasive, noxious weed.

Thurber's pilostyles (*Pilostyles thurberi*)

Status: --/--; CRPR 4.3

Distribution: Imperial, Riverside, and San Diego counties; Arizona; Nevada; Baja California and Sonora, Mexico.

Habitat and Biology: A perennial, parasitic herb found in Sonoran desert scrub flatlands at less than 1,000 feet AMSL. Typical host plant is white dalea (Baldwin et al., 2002). Blooms in January (CNPS, 2011).

Status in Proposed OWEF site: Observed on 318 white dalea host plants in a variety of scrub habitats in the central and western portions of the proposed OWEF site with most occurrences concentrated in the central portion of the proposed OWEF site. Other species present in the vicinity include creosote bush, cheesebush, ocotillo, indigo bush, Thurber's sandpaper plant, Wolf's cholla, pencil cholla, and silver cholla.

Desert unicorn plant (*Proboscidea althaeifolia*)

Status: --/--; CRPR 4.3

Distribution: Imperial, Riverside, and San Diego counties; Arizona; New Mexico; Baja California and Sonora, Mexico

Habitat and Biology: Desert washes in Sonoran desert scrub. Elevation range is 500 to 3,300 feet AMSL. Blooms May to August (CNPS, 2011).

Status in Proposed OWEF site: Six (6) individuals observed in the northeastern portion of the survey area.

3.18.1.4 Federal and State Jurisdictional Areas

Field work for the jurisdictional delineation was conducted in October and November 2010. The results presented below are consistent with input provided by the ACOE (pers comm. Mattson et al., 2010). The ACOE concurred with the field determination. Field work conducted in November was conducted following ACOE input.

Jurisdictional delineation data was collected along 10 transects, which were set up perpendicular along two baselines. Baseline 1 ran east-west through the portion of the proposed OWEF site which is north of I-8. All 10 transects intercept this baseline. Baseline 2 is located in the portion of the proposed OWEF site south of I-8 and was also oriented east-west. Transects 8, 9, and 10 also intercept this baseline. The entire length of each transect was surveyed on foot. Jurisdictional features were mapped with the aid of a GPS that is accurate to less than 3 feet.

Determining Federal Jurisdiction

All areas with depressions, drainage channels, or wetland vegetation were evaluated for the presence of ACOE Waters of the U.S (WUS). Previous field surveys (such as vegetation mapping, rare plant surveys, etc.) revealed that no jurisdictional wetlands occur within the proposed OWEF site. This conclusion is based on the lack of any vegetation dominated by wetland species.

Areas were determined to be jurisdictional non-wetland WUS where there was evidence of an ordinary high water mark (OHWM). ACOE regulations define OHWM, for the purposes of the Clean Water Act (CWA) at 33 CFR 328.3(e):

> "The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, and other appropriate means that consider the characteristics of the surrounding areas."

Among other points, the Regulatory Guidance Letter (ACOE, 2005) lists the following physical characteristics to consider when making an OHWM determination:

- Natural line impressed on the bank
- Shelving
- Changes in the character of soil
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour

- Destruction of terrestrial vegetation
- Presence of litter and debris
- Wracking
- Vegetation matted down, bent, or absent
- Deposition
- Multiple observed flow events
- Bed and Banks
- Water Staining
- Change in plant community

The ACOE has also issued further instructions for identifying the OHWM in desert areas (Lichvar and McColley, 2008), which has also been used as a guide to identifying the limits of ACOE jurisdiction within the proposed OWEF site. This publication relies on stream geomorphology and vegetation response to the dominant stream discharge to aid in identifying the OHWM.

ACOE jurisdictional non-wetland Waters of the U.S. within the proposed OWEF site total 239.16 acres (Table 3.18-4). No ACOE jurisdictional wetlands occur within the proposed OWEF site.

Table 3.18-4. Existing Jurisdictional Areas

Habitat	ACOE	CDFG
Wetlands		
Allscale scrub	0.00	17.51
Cheesebush scrub	0.00	379.70
Creosote bush-allscale scrub	0.00	216.01
Creosote bush-fourwing saltbush scrub	0.00	9.56
Desert lavender scrub	0.00	3.91
Fourwing saltbush scrub	0.00	6.53
Mesquite thicket	0.00	0.27
Smoke tree woodland	0.00	225.51
Non-Wetlands		
Drainage/Streambed	239.16	158.38
TOTAL	**239.16**	**1,017.38**

Source: HELIX 2011a

The results presented here are also consistent with recent court decisions (i.e., *Rapanos v. United States*, *Carabell v. United States*, and *Solid Waste Agency of Northern Cook County v. ACOE*), as outlined and applied by the ACOE (ACOE, 2007; Grumbles and Woodley, 2007), ACOE and U.S. Environmental Protection Agency (ACOE and EPA, 2007), and EPA and ACOE (EPA and ACOE, 2007). These publications explain that the EPA and ACOE will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are a relatively permanent water body (RPW), which has year-round or continuous seasonal flow.

Determining State Jurisdiction

CDFG jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFG jurisdiction were delineated based on the definition of streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (Title 14, Section 1.72 California Code of Regulations). This definition for CDFG jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., smoke tree woodland and cheesebush scrub). Within the proposed OWEF site, however, these were only considered CDFG jurisdictional if associated with a streambed or watercourse. There are apparent drainages in the proposed OWEF site that show no sign of any stream flow, and these were not regarded as CDFG jurisdictional.

CDFG jurisdictional areas within the proposed OWEF site total 1,017.38 acres and consist of 859.00 acres of wetlands and 158.38 acres of streambed (Table 3.18-4).

3.18.2 Applicable Regulations, Plans, and Standards

This section provides a discussion of federal, state, and regional environmental regulations, plans and standards applicable to the OWEF for vegetation resources and state and federal jurisdictional areas.

3.18.2.1 Federal Regulations

National Environmental Policy Act

NEPA (42 U.S.C. 4321 et seq.) declares a continuing federal policy that directs “a systematic, interdisciplinary approach” to planning and decision-making and requires environmental statements for “major Federal actions significantly affecting the quality of the human environment.” Implementing regulations by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508) requires federal agencies to identify and assess reasonable alternatives to proposed actions that will restore and enhance the quality of the human environmental and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of federal actions. The BLM is the Lead Agency under NEPA for the OWEF.

Clean Water Act

The CWA (33 U.S.C. 1251 et seq.) is intended to restore and maintain the quality and biological integrity of the nation’s waters. It prohibits the discharge of pollutants into WUS without a National Pollutant Discharge Elimination System (NPDES) permit from the EPA. By issuing NPDES permits, the EPA can regulate the discharge of pollutants to protect water quality.

Section 404 of the CWA provides that whenever any person discharges dredged or fill material into waters of the U.S. (e.g., streams, wetlands, lakes, bays) a permit is required from the ACOE. The ACOE has issued 50 separate Nationwide Permits (NWPs) for different types of projects with impacts to wetlands (as of March 19, 2007). Depending on the level of impact, projects qualifying for an NWP may be required to provide the ACOE with Pre-Construction Notification of the impacts and meet other restrictions. Projects with greater wetland impacts than those allowed under one of the NWPs require an Individual Permit. The process of obtaining an individual permit includes public notice and response to all comments received; the permit decision document includes a discussion of the environmental impacts of the project, the permit addresses public and private needs, alternatives to achieve project purposes if needed, and beneficial and/or detrimental effects of the project on public and private uses. In *SWANCC vs. ACOE*, the Supreme Court ruled that the jurisdiction of the ACOE does not extend to isolated, intrastate, non-navigable waters and wetlands, such as vernal pools, ephemeral streams, and wetlands not associated with a stream channel. The ACOE also authorizes activities that involve structures or work in or affecting navigable WUS under Section 10 of the Rivers and Harbors Act of 1899.

Section 401 of the CWA requires that an applicant for a federal license or permit to discharge into navigable waters must provide the federal agency with a water quality certification, declaring that the discharge would comply with water quality standards requirements of the CWA. ACOE issuance of a Section 404 permit triggers the requirement that a Section 401 certification also be obtained. In California, the Regional Water Quality Control Boards (RWQCBs) issue this certification.

Executive Order 13112 – Invasive Species

Executive Order 13112 was signed in February 1999 and established the National Invasive Species Council. This Order requires agencies to prevent the introduction of invasive species; to provide for their control; and to minimize the economic, ecological, and human health impacts that invasive species cause to the extent practicable and permitted by law.

Plant Protection Act

The Plant Protection Ace (Public Law 106-224 [June 20, 2000]) replaced the Federal Noxious Weed Act and many other USDA Animal and Plant Health Inspection Service Plant Protection Authorities. This Act consolidates and modernizes all major statutes pertaining to plant protection and quarantine (Federal Noxious Weed Act, Plant Quarantine Act).

Lacey Act, as amended (16 USC 3371-3378)

This Act protects plants and wildlife by creating civil and criminal penalties for a wide variety of violations including illegal take, possession, transport or sale of protected species.

Federal Endangered Species Act

The ESA designates threatened and endangered animals and plants and provides measures for their protection and recovery. "Take" of listed animal species and of listed plant species is prohibited without obtaining a federal permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm includes any act that actually kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage the habitat of (i.e., harm) listed wildlife species require approval from the USFWS for terrestrial species. The ESA also generally requires determination of critical habitat for listed species. If critical habitat has been designated, impacts to areas that contain the primary constituent elements identified for the species, whether or not it is currently present, is also prohibited. ESA Section 7 and Section 10 provide two pathways for obtaining authority to take listed species.

Under Section 7 of the ESA, a federal agency that authorizes, funds, or carries out a project that "may affect" a listed species or its critical habitat must consult with USFWS. For example, the ACOE must issue a permit for projects impacting non-wetland WUS or wetlands under ACOE jurisdiction. In a Section 7 Consultation, the lead agency (e.g., ACOE) prepares a biological assessment (BA) that analyzes whether the project is likely to adversely affect listed wildlife or plant species or their critical habitat, and proposes suitable avoidance, minimization, or compensatory mitigation measures. If the action would adversely affect the species, USFWS then has 30 days to respond to the federal agency regarding the adequacy of the analysis of effects to the species addressed in the BA. If the BA is deemed adequate then consultation is initiated. At the end of the consultation (135 days by regulations), the USFWS issues its

Biological Opinion determining whether the project is likely to jeopardize the species or result in adverse modification of critical habitat. If a "no jeopardy" opinion is provided, the project may proceed. If a jeopardy or adverse modification opinion is provided, the USFWS may suggest "reasonable and prudent measures" that would result in no jeopardy.

Under Section 10 of the ESA private parties with no federal nexus (i.e., no federal agency will authorize, fund, or carry out the project) may obtain an Incidental Take Permit to harm listed species incidental to the lawful operation of a project. To obtain an Incidental Take Permit, the applicant must develop a habitat conservation plan (HCP) which specifies effects to listed species, provides minimization and mitigation measures and funding, discusses alternatives considered and the reasons why such alternatives are not being used. If the USFWS finds that the HCP will not "appreciably reduce the likelihood of the survival and recovery of the species" it will issue an Incidental Take Permit. Issuance of an Incidental Take Permit requires the USFWS to conduct an internal Section 7 consultation, thus triggering coverage of any listed plant species or critical habitat present on site (thus, listed plants on private property are protected under ESA if a listed animal is present). Unlike a Section 7 consultation, the USFWS is not constrained by a time limit to issue an Incidental Take Permit.

BLM Sensitive Species

BLM Sensitive Species are species designated by the State Director that are not already federal listed proposed, or candidate species, or state listed because of potential endangerment. BLM's policy is to "ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered." Various offices of the BLM maintain a list of special status plant and wildlife species that are to be considered as part of the management activities carried out by the BLM on the lands that they administer.

CDCA Plan

The CDCA Plan covers approximately 25 million acres of land in southern and southeastern California, with approximately 10 million acres being administered by the BLM. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development and protection of the resources and public lands within the CDCA and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality.

The multiple use classes comprise the backbone of the CDCA Plan, essentially zoning the CDCA into four major use categories, as a city or county is zoned for land use classes. The CDCA Plan categories include approximately four million acres of Class C (controlled) lands (including roughly 3,600,000 acres of wilderness areas created under the 1994 California Desert Protection Act) to be preserved in a natural state with access generally limited to non-motorized, non-mechanized means; approximately four million acres of Class L (limited use) lands, providing for generally lower intensity, carefully controlled uses that do not significantly diminish resource values; approximately 1.5 million acres of Class M (moderate use) lands designated for mining, livestock grazing, recreation, energy, and utility development with mitigation required for any damage caused by permitted uses; and approximately 500,000 acres of Class I (intensive use) lands managed for concentrated uses with reasonable protection provided for sensitive natural values and mitigation of impacts and rehabilitation of impacted areas occurring when possible (BLM, 2007).

The Plan's goals and actions for each resource are established in its 12 elements including the Vegetation Element and the Energy Production and Utility Corridors Element, among several others (BLM, 2007). The proposed OWEF site is located within Class C and Class L lands (BLM, 1980, fold-out map). While there have been amendments to the 1980 Plan, such as the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), none of the amendments affect the proposed OWEF site.

According to the Plan's Multiple Use Class Guidelines, wind/solar power plants are not allowed within Class C lands but may be allowed within Class L lands after NEPA requirements are met (BLM, 1980). The Plan also states, however (in the Energy Production and Utility Corridors Element section), that "Plan amendment procedures will adequately provide for the coordination needed for assuring rapid implementation of these important fuel-replacement alternative energy programs in an environmentally sound manner" (BLM, 1980).

Executive Order 11990 Protection of Wetlands

This order establishes a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. 661 666) applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the NEPA process and Section 404 permit process.

3.18.2.2 State Law and Regulations

California Endangered Species Act

The California ESA provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike ESA, state listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to ESA, and is prohibited for both listed and candidate species. Take authorization may be obtained by the project applicant from CDFG under California ESA Sections 2091 and 2081. Section 2091, like ESA Section 7, provides for consultation between a state lead agency under the CEQA and CDFG, with issuance of take authorization if the project does not jeopardize the listed species. Section 2081 allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFG to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

California Environmental Quality Act

CEQA was enacted in 1970 to provide for full disclosure of environmental impacts to the public before issuance of a permit by state and local public agencies. In addition to federal or state listed species, "sensitive" plants and animals receive consideration under CEQA. Sensitive species include, but are not limited to, wildlife Species of Special Concern listed by CDFG, and plant species on the California Native

Plant Society's List 1A (presumed extinct), List 1B (rare, threatened, or endangered in California and elsewhere; eligible for state listing), or List 2 (rare, threatened, or endangered in California but more common elsewhere; eligible for state listing).

California Fish and Game Code

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFG cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, is the responsibility of the CDFG to maintain viable populations of all native species. To that end, the CDFG has designated certain vertebrate species as Species of Special Concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

California Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 directed the CDFG to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. The California Endangered Species Act of 1984 expanded on the original NPPA and enhanced legal protection for plants, but the NPPA remains part of the Fish and Game Code. To align with federal regulations, California ESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the Act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in California ESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFG and the project proponent.

Porter-Cologne Act

The intent of the Porter-Cologne Act is to protect water quality and the beneficial uses of water, and applies to both surface and groundwater. Under this law, the California State Water Resources Control Board develops statewide water quality plans, and the RWQCBs develop basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under Porter-Cologne include isolated waters that are no longer regulated by ACOE. Developments which impact jurisdictional waters must demonstrate compliance with the goals of the Act by developing Storm Water Pollution Prevention Plans, Standard Urban Storm Water Mitigation Plans, and other measures in order to obtain a CWA Section 401 certification.

Lake and Streambed Alteration Program

Prior to commencement of any activity that would substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, the applicant will submit a complete Lake or Streambed Alteration Program notification package and fee to the CDFG. The Lake and

Streambed Alteration Program is a California law that requires that any person, state or local government agency, or public utility notify the CDFG prior to beginning of the activities listed above. The CDFG has 30 days to review the proposed actions and propose measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFG and the project proponent becomes the Lake or Streambed Alteration Agreement. The conditions of agreement and a CWA Section 404 permit often overlap.

3.18.2.3 Regional and Local Plans, Policies, and Regulations

Imperial County General Plan

The Conservation and Open Space Element and Land Use Element of the General Plan (Imperial County, 1993 and 2008) direct the County to evaluate the compatibility of proposed development projects with the preservation of biological resources and open space.

The Goals and Objectives of Conservation of Environmental Resources and Preservation of Biological Resources within the Conservation and Open Space Element related to vegetation, sensitive plant species, and jurisdictional areas include the following:

> Goal 1: Environmental resources will be conserved for future generations by minimizing environmental impacts in all land use decisions.
>
> > Objective 1.1 Recognize that the degradation of one natural resource will have a concomitant negative effect upon the total resource base, including water, vegetation, air, wildlife, soil, and minerals.
> >
> > Objective 1.2 Encourage only those uses and activities that are compatible with the fragile desert, aquatic, and marshland environment.
> >
> > Objective 1.3 Coordinate the acquisition, designation, and management of important natural resource areas in Imperial County with other appropriate governmental agencies as necessary.
> >
> > Objective 1.4 Develop standards to protect significant natural resource areas for the purpose of enhancing both the planning and decision-making process.
> >
> > Objective 1.5 Provide for the most beneficial use of land based upon recognition of natural constraints.
> >
> > Objective 1.6 Ensure the conservation, development and utilization of the County's natural resources.
> >
> > Objective 1.7 Provide the opportunity for enjoyment of a quality natural experience to present and future generations.
> >
> > Objective 1.8 Encourage the acquisition of scientific knowledge by encouraging the preservation of important ecological, archaeological, and other scientific sites.
>
> Goal 2: The County will preserve the integrity, function, productivity, and long-term viability of environmentally sensitive habitats, and plant and animal species.
>
> > Objective 2.1 Conserve wetlands, fresh water marshes, and riparian vegetation.
> >
> > Objective 2.2 Protect significant fish, wildlife, plant species, and their habitats.

Objective 2.3 Protect unique, rare, and endangered plants and animals and their habitats.

Objective 2.4 Use the environmental impact report process to identify, conserve and enhance unique vegetation and wildlife resources.

Objective 2.5 Give wildlife conservation a high priority in County park acquisition and development programs.

Objective 2.6 Attempt to identify, reduce, and eliminate all forms of pollution which adversely impact vegetation and wildlife.

Objective 2.7 Discourage the use of wild native animals as pets.

The Goals and Objectives of Protection of Environmental Resources within the Land Use Element related to vegetation, sensitive plant species, and jurisdictional areas include the following include the following:

Goal 9: Identify and preserve significant natural, cultural, and community character resources and the County's air and water quality.

Objective 9.1 Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes.

An analysis of compatibility will be provided in Section 4.17 and 4.23, as appropriate.

Imperial County Land Use Ordinance

The Imperial County Land Use Ordinance provides grading regulations for proposed development projects throughout the unincorporated areas of the county (Imperial County, 2009).

3.19 Visual Resources

Visual resources refer to visual considerations in the physical environment. Visual resources analysis is a systematic process to logically assess visible change in the physical environment and the anticipated viewer response to that change. The visual resources section describes the existing landscape character and visual quality of the OWEF area, existing views of the proposed project area from various on-the-ground vantage points, the visual characteristics of the proposed project, and the landscape changes that would be associated with the construction and operation of the proposed project as seen from various vantage points.

For the purposes of this analysis, the proposed OWEF study area is defined as the areas and locations from which the proposed project can be seen, also referred to as the project viewshed. From a practical standpoint, the primary area of concern is that portion of the Yuha Desert east of the Jacumba Mountains, south of the Coyote Mountains, west of Plaster City, and north of Jacumba Wilderness.

3.19.1 Environmental Setting

3.19.1.1 Regional Setting

The proposed OWEF is located within the Salton Trough of the Basin and Range physiographic province. This area is characterized by rough, rocky mountains formed by northerly trending fault blocks. Typical of this province are desert basins and jagged ranges along with desert alluvial slopes (bajadas) and wide valleys that are interconnected across low divides (Hunt, 1974). Views from travel routes within the vicinity of the study area tend to encompass broad, sweeping desert expanses bordered by rugged mountain ranges. Within this regional setting, the study area for the visual resources analysis is defined by the numerous viewpoints from which the proposed project would be seen. The viewshed is considerable given the relative openness of the landscape, the height of the proposed wind turbines, and the availability of viewing opportunities from travel routes, recreational use areas, and a nearby residential community.

3.19.1.2 Approach to Baseline Analysis

General Approach

The Federal Land Policy and Management Act of 1976 (FLPMA) identifies scenic resources as one of the resources for which public lands should be managed. In order to satisfy its responsibilities with respect to scenic resources, the BLM's Visual Resource Management (VRM) Policy establishes a visual assessment methodology to inventory and manage scenic values on lands under its jurisdiction. The BLM manual M-8400 (Visual Resource Management), Handbook H-8410 (Visual Resource Inventory), Handbook H-8431 (Visual Resource Contrast Rating), and Instruction Memorandum 2009-167 (Application of the VRM Program to Renewable Energy) set forth the policies and procedures for determining visual resource values, establishing management objectives, and evaluating proposed actions for conformance with established objectives for BLM-administered public lands.

The three primary elements of the BLM's VRM Policy are: (1) determining resource values; (2) establishing management objectives; and (3) evaluating the conformance of proposed actions with those objectives (each of which are described briefly below; please see Appendix F for more detail).

- *Determining Resource Values:* The primary means to establish visual resource values is through a Visual Resource Inventory (VRI) that results in the assignment of one of four VRI Classes (I to IV) to represent the relative visual value of an area. VRI Class I has the highest value and VRI Class IV has the lowest. VRI Class I is reserved for special congressional designations or administrative decisions such as Wilderness Areas, visually sensitive Areas of Critical Environmental Concern (ACECs), or Wild and Scenic Rivers, etc. VRI Classes II through IV are determined through a systematic process that documents the landscape's scenic quality, public sensitivity, and visibility. Rating units for each of the three factors are mapped individually, evaluated, and then combined through an over-layering analysis. The three factors going into the VRI Class determination are described in Appendix E-2. The combined factors are then cross-referenced with the VRI Matrix to determine the applicable VRI Class. VRI Classes are informational in nature and provide a baseline for existing conditions. They do not establish management direction and should not be used as a basis for constraining or encouraging surface disturbing activities. They provide the baseline data for existing conditions. The applicable Scenic Quality Rating Unit forms are presented in Appendix E-1).
- *Establishing Management Objectives*: VRM Classes are determined through careful consideration of VRI Class designations (visual values), land use and demands, and the resource allocations and/or management decisions made in the applicable land use plan for a given area. VRM Class designations set the level of visual change to the landscape that may be permitted for any surface-disturbing activity. The objective of VRM Class I is to preserve the character of the landscape, whereas VRM Class IV provides for activities that require major modification to the landscape. VRI Classes are not intended to automatically become VRM Class designations. VRM Classes may be different than the VRI Classes assigned during the inventory, as the former should reflect a balance between the protection of visual values and other resource use needs. For example, an area with a VRI Class II designation may be assigned a VRM Class IV designation based on its overriding value for mineral resource extraction or its designation as a utility corridor. The objectives of each VRM classification are as follows.
    - **VRM Class I.** The objective is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
    - **VRM Class II.** The objective is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
    - **VRM Class III.** The objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate or lower. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
    - **VRM Class IV.** The objective is to provide for management activities, which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view

and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements in the predominant natural features of the characteristic landscape.

The applicable VRI Class worksheets are presented in Appendix E-1.

- *Evaluating the Conformance:* Finally, proposed plans of development are evaluated for conformance to the VRM Class objectives through the use of the Visual Resource Contrast Rating process set forth within BLM Handbook H-8431-1. Contrast rating worksheets are presented in Appendix E-1.

Approach Under the CDCA Plan

The general approach described above varies slightly for the proposed OWEF due to the proposed project's location in the CDCA. The CDCA Plan, which is the land use plan covering the area where the project is located, does not contain a visual resource element and has no established VRM Classes. When a project is proposed and there are no Resource Management Plan-approved VRM objectives, Interim VRM Classes must be established. These classes are developed using the process just described but may be restricted in geographic scope to areas affected by the proposed action. If the area is also without a VRI, then one must be conducted in order to provide a baseline of data by which to analyze impacts and to inform appropriate designation of interim VRM Classes.

Approach for Non-BLM Lands

The BLM's VRM methodology was also applied to non-BLM lands including non-BLM lands in the vicinity of the community of Ocotillo and, to the west, Anza-Borrego Desert State Park (ABDSP). This required a focused VRI of the state park lands west of the project site in the vicinity of Mortero Palms and the Volcanic Hills farther to the north.

3.19.1.3 Project Viewshed and Key Observation Points

Project Viewshed

The proposed OWEF site is situated at the western end of the Yuha Desert at the bottom of Mountain Springs Grade along Interstate 8 (I-8). The site consists primarily of a flat desert basin with the occasional low, isolated desert hill and localized areas of considerable erosion and steeply cut drainages and washes that add some topographic variety and visual interest to the landscape. The area is bisected by several dry washes and is bordered by rugged, rocky mountains and jagged ridgelines. Vegetation is sparse, with low-growing grasses and shrubs such as creosote predominating. The existing Southwest Powerlink (SWPL) 500-kV transmission line, with its lattice towers, crosses the site and is a prominent built feature. Several travel routes pass through the project area including I-8, State Route 98, (SR98) and County Road S2 (Imperial Highway). The community of Ocotillo is located between the eastern portion of Site 1 (to the north) and Site 2 (to the south). The project study area for the purposes of visual resources (i.e., its viewshed) is defined as all land areas from which any element of the project would be visible. Views of the project site are available from the primary travel routes (I-8, SR98, and S2), the community of Ocotillo, and several BLM 4WD recreational access roads that pass through and near the project site. The site is also visible from the Coyote Mountains Wilderness to the north, Jacumba Wilderness to the south, and the southern portion of ABDSP to the west, including the Jacumba Mountains, Volcanic Hills, and the vicinity of Mortero Palms and Dos Cabezas Primitive Camp Area. Based on BLM guidance (BLM Handbook H-8410), the outer extent of the background visibility zone is a radius 15 miles away from the outer edges of the project footprint. Beyond 15 miles is considered the "seldom seen" zone. Beyond this distance the project may be visible, although it would constitute a distant and minor element in views and would likely disappear into the horizon line, or be hidden by atmospheric conditions (e.g., haze or dust) and intervening topography. Figure 3.19-1 presents a project viewshed map.

Alternative 1 (Proposed Action) Key Observation Points

In consultation with the BLM, four representative KOPs were established to assess the various factors that are considered in the evaluation of a landscape's existing visual resources. Based on a subsequent field reconnaissance, two additional KOPs were selected in ABDSP. KOPs were generally selected to be representative of the most critical locations from which the proposed project would be seen. KOPs were located based on their usefulness in evaluating existing landscapes and potential impacts on visual resources with various levels of sensitivity, in different terrain, and from various vantage points. KOP locations for the proposed project include: (1) along major or significant travel corridors (I-8 and S2), (2) at nearby recreation areas (ABDSP), and (3) from a nearby residential community (Ocotillo Community Park). These locations provide representative examples of the existing landscape context and viewing conditions for the proposed project and are shown on Figure 3.19-1. At each KOP, the existing landscape was characterized per the applicable methodology and photographed. Photographs are presented as 11" x 17" color images at "life-size scale" when viewed at a standard reading/viewing distance of 18 inches (i.e., when the report image is held at a distance of 18 inches from the eye, all landscape features in the images would appear to be the same scale and size as they would appear in the field at the viewpoint location). A discussion of the existing visual setting for each KOP is presented in the following paragraphs.

Key Observation Point 1 (KOP 1) – Eastbound Interstate 8 at the bottom of Mountain Springs Grade

KOP 1 was established on eastbound I-8, where it splits from westbound I-8 at the base of Mountain Springs Grade in western Imperial County, and is representative of the various proposed project views along eastbound I-8 after descending Mountain Springs Grade (see Figure 4.18-2A). It is along this section of I-8 that travelers get their first views of the western Yuha Desert. While it is understood that viewpoints closer to turbines will experience greater visual contrast, and viewpoints that are farther away from the turbines will experience lesser visual contrast, KOP 1 was considered a reasonable compromise in viewpoint location along eastbound I-8. Viewing to the north-northeast, this view encompasses a portion of the Yuha Desert in close proximity to major infrastructure corridors including I-8 and the existing SWPL transmission line (not apparent in the view presented as Figure 4.18-2A). The flat desert landscape supports an irregular to consistent distribution of short grasses and shrubs of subdued color. Although there are distant mountain ranges and areas of localized erosion that create land variation of visual interest, the overall scenic quality of the desert basin landscape is somewhat compromised by the prominence of the freeway, the presence of the SWPL steel-lattice structures with their industrial character (when viewed from various viewpoints), and the existing development associated with the community of Ocotillo. The applicable Scenic Quality Classification is Class C, and Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, ABDSP, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997).

The applicable VRI Class Rating is III.

Key Observation Point 2 (KOP 2) – Westbound Interstate 8 at the bottom of Mountain Springs Grade

KOP 2 was established on westbound I-8, west of the I-8 split at the base of Mountain Springs Grade in western Imperial County, and is representative of project views along westbound I-8 in the vicinity of the proposed OWEF (see Figure 4.18-3A). While it is understood that a different viewpoint along I-8 might capture more or fewer turbines in the field of view, and thus, experience different levels of visual contrast, KOP 2 was considered a reasonable compromise in viewpoint location along westbound I-8. Viewing to the northwest, this view encompasses the far western portion of the Yuha Desert, west of the community of Ocotillo and the existing SWPL transmission line, and extending to the San Diego/Imperial County line. This area includes a foreground to middleground flat desert landscape that supports a sparse and irregular to more uniform at distance distribution of short grasses and shrubs of subdued color. Although the rugged and visually interesting landforms of the adjacent Jacumba Mountains and Volcanic Hills to the west and Coyote Mountains to the north provide backdrops of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, ABDSP, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is III.

Key Observation Point 3 (KOP 3) – Ocotillo Community Park

KOP 3 was established in Ocotillo Community Park, off of S2 and northwest of the community of Ocotillo (see Figure 4.18-4A). This KOP is representative of views of the proposed OWEF from the park and from residences within the community of Ocotillo west of the park. Therefore, KOP 3 is versatile in that it is representative of two viewing populations. Viewing to the north, this view encompasses a portion of the Yuha Desert north of the community of Ocotillo. This area includes a foreground to middleground, flat desert landscape that supports a grass- and shrub-covered desert basin landform of subdued color. The basin floor is crossed by faintly visible utility towers with noticeable industrial character, which are soon to be paired up with the recently approved Sunrise Powerlink 500-kV transmission line. Although the rugged landforms of the Coyote Mountains to the north provide a backdrop of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, ABDSP, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is III.

Key Observation Point 4 (KOP 4) – Southbound S2, South of the Border Patrol Checkpoint

KOP 4 was established on southbound S2, approximately 1.2 miles southeast of the San Diego/Imperial County line in western Imperial County, and is representative of project views along southbound S2 in the vicinity of the proposed OWEF (see Figure 4.18-5A). This viewpoint was selected because it captures a scenic view of the Jacumba Mountains within the primary cone of vision (45° either side of the primary direction of travel) of travelers on southbound S2 as it enters into the western Yuha Desert. Viewing to the south-southeast, this view encompasses the far western portion of the Yuha Desert, west of the community of Ocotillo and the existing SWPL transmission line, and extending to the San Diego/Imperial County line. This area includes a foreground to middleground flat desert landscape that supports a sparse and irregular, to more uniform at distance, distribution of short grasses and shrubs of subdued color. Although the rugged and visually interesting landforms of the adjacent Jacumba Mountains and Jacumba Wilderness to the south provide a backdrop of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, ABDSP, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is III.

Key Observation Point 5 (KOP 5) – ABDSP Mortero Palms Area

KOP 5 was established on the access road to the Mortero Palms and Dos Cabezas Primitive Camping Area, which is located approximately one mile west of the proposed project boundary (see Figure 4.18-6A). This KOP is representative of views of the proposed OWEF from the vicinity of the primitive camping area, which is a popular recreation destination, and the lower elevation areas of southern ABDSP. Viewing to the east, this view encompasses the western portion of the Yuha Desert located at the foot of the Jacumba Mountains and west of the community of Ocotillo. This area includes a foreground to middleground, flat desert landscape that supports a grass- and shrub-covered desert basin landform of subdued color but is punctuated by the distinctive vertical forms of ocotillo plants. The existing SWPL transmission line structures are only faintly visible and relatively indistinct to the casual observer. This far western portion of the Yuha Desert, which is backdropped by the rugged and visually interesting landforms of the adjacent Coyote Mountains to the north and Jacumba Mountains to the south, imparts a greater sense of remoteness relative to basin areas farther to the east. The applicable Scenic Quality Classification is Class B. Viewer Sensitivity is high because these lands are within ABDSP and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). Also, this area is popular with backcountry enthusiasts traveling to the Mortero Palms and Dos Cabezas Primitive Camping Area, in particular, and the southern portion of ABDSP, in general. The applicable VRI Class Rating is II.

Key Observation Point 6 (KOP 6) – ABDSP Red Hill

KOP 6 was established on the crest of Red Hill in the Volcanic Hills of the southern portion of ABDSP, which is located approximately 2.1 miles northwest of the northwest corner of the proposed project boundary (see Figure 4.18-7A). This KOP is representative of views of the proposed OWEF from Red Hill, the Volcanic Hills, and other elevated perspectives in the southern portion of ABDSP. The importance of this elevated viewpoint is that it is generally representative of the variety of elevated viewpoints that surround three sides of the project area (north, south, and west).

Viewing to the east-southeast, this portion of ABDSP offers panoramic views and an overlook of the Yuha Desert basin that also encompasses the surrounding and visually interesting rugged Jacumba Mountains, Volcanic Hills, and Coyote Mountains, with the Sierra Cucapa Range in Mexico in the distant background. This area includes foreground to middleground rolling to angular hills, transitioning to a flat basin floor with sparse grass and low-growing shrubs of subdued color. The community of Ocotillo and the existing SWPL transmission line structures are only faintly visible and relatively indistinct to the casual observer. As a result, the landscape is primarily natural in appearance. This far western portion of the Yuha Desert imparts a greater sense of remoteness relative to basin areas farther to the east, and the elevated perspective over the Yuha Desert adds additional visual interest. The applicable Scenic Quality Classification is Class B. Viewer Sensitivity is high because these lands are within ABDSP and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). Also, this area is popular with backcountry enthusiasts traveling to the Volcanic Hills, Jacumba Mountains, and Carrizo Gorge area of ABDSP. The applicable VRI Class Rating is II.

Alternative 2 (137 Turbines) Key Observation Point

Alternative 2 would reduce the number of proposed turbines to 137 by eliminating the 21 Phase 2 turbines located in the northwest and northeast corners of Site 1 and a few turbines in Site 2. Due to the limited reduction in the number of turbines and the dispersed nature of the reduction, only one KOP - Proposed Project KOP 6 (ABDSP Red Hill) was selected to evaluate Alternative 2. The landscape setting discussion presented for Proposed Project KOP 6 is the same as for Alternative 2, and the reader is referred to the discussion of KOP 6 above (see Figure 4.18-7A).

Alternative 3 (105 Turbines) Key Observation Points

Alternative 3 would further reduce the number of proposed turbines to 105 by eliminating additional turbines in the northeast corner of Site 1 and all of the turbines in Site 2. Two KOPs were selected to evaluate these localized landscapes.

Key Observation Point 7 (KOP 7) – S2 in the Community of Ocotillo

KOP 7 was established on S2 in the community of Ocotillo (see Figure 4.18-8A). This KOP is representative of views of Alternative 3 from S2 and from residences within the community of Ocotillo. This viewpoint was selected in order to provide a representative view of the project from the central portion of Ocotillo. Viewing to the north, this view encompasses a portion of the Yuha Desert north of the community of Ocotillo. This area includes a foreground to middleground, flat desert landscape that supports a grass- and shrub-covered desert basin landform of subdued color. The basin floor is crossed by faintly visible utility towers with noticeable industrial character, which are soon to be paired up with the recently approved Sunrise Powerlink 500-kV transmission line. Although the rugged landforms of the Coyote Mountains to the north provide a backdrop of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is II.

Key Observation Point 8 (KOP 8) – SR 98 Southeast of Ocotillo

KOP 8 was established on SR 98 at Mesquite Road in the vicinity of Nomirage, southeast of the community of Ocotillo (see Figure 4.18-9A). This KOP is representative of views of Alternative 3 from

SR 98 and nearby residences. This is the only KOP that captures a foreground view of the southeastern portion of the development area. Viewing to the southwest, this view encompasses a portion of the Yuha Desert south of the community of Ocotillo. This area includes a foreground to middleground, flat desert landscape that supports a grass- and shrub-covered desert basin landform of subdued color, punctuated by the linear, vertical forms of a wood pole utility line in close proximity to SR98. Also visible are several rural residences that are scattered throughout the landscape north and south of SR98. Although the rugged and visually interesting landforms of the Jacumba Mountains to the south and west provide a backdrop of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, SR98, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is III.

3.19.2 Application Regulations, Plans, and Standards

Public agencies and planning policy establish visual resource management objectives in order to protect and enhance public scenic resources. Goals, objectives, policies, and implementation strategies and guidance are typically contained in resource management plans, comprehensive plans and elements, and local specific plans. As described elsewhere in this document and in Table 3.19-2 below, federal guidance comes from the BLM's VRM Classifications, CDCA Plan, and Yuha Basin Area of Critical Environmental Concern Management Plan. State guidance is found in the Anza-Borrego Desert State Park Goals and Policies. Local guidance is found in plans and policy documents for Imperial County including the Imperial County General Plan Conservation and Open Space Element. Table 3.19-1 lists the relevant regulations, plans, and standards and notes project consistency with each. As discussed in Section 4.18.2, consistency with applicable regulations, plans, and standards is also a potential indicator of the occurrence of an adverse impact. The significance of any policy inconsistencies is addressed in section 4.18.3.2.

Table 3.19-1. Consistency with Regulations, Plans, and Standards

Applicable Policies	Consistency Determination	Consistent
Federal		
CDCA Plan		
VISUAL RESOURCES		
6.0 Electrical Generation Facilities, VRM Classifications, Table 1: Multiple Use Class Guidelines, Page 15		
The 2008 Yuha Desert/West Mesa Visual Resource Inventory assigned a VRI Class III to the land area that encompasses the presently proposed OWEF project area. This inventory classification was reiterated in the more recent regional inventory prepared by Otak. At the time of the 2008 inventory, it was determined that the VRI classifications would be carried forward as Interim VRM classifications. Therefore, the land area encompassing the OWEF project area is to be managed in accordance with Interim VRM Class III objectives. The VRM Class III Management Objective requires that a project or action partially retain the existing character of the landscape. The level of change to the landscape should be moderate. Activities may attract attention but should not dominate the view of the casual observer. Changes should repeat	The proposed project would occupy BLM lands in the western portion of the Yuha Desert with an interim VRM Class IV designation. The moderate to high levels of visual change that would be caused by the proposed project in this area would meet the interim VRM Class IV objective. The wind turbines with their vertical, linear, structural forms and lines would not repeat the basic elements of the existing natural features in the landscape (simple, flat, horizontal landform). Also, the structures would be prominent to dominant features in the landscape, accentuated by the skylining that would occur. This would be particularly noticeable where the structures are located in close proximity to existing roads and highways, recreational facilities and areas, and rural	YES

Table 3.19-1. Consistency with Regulations, Plans, and Standards

Applicable Policies	Consistency Determination	Consistent
the basic elements found in the predominant natural features of the characteristic landscape.	residential areas. See Figures 4.18-2A through 4.18-7B. Although the area is managed as an interim VRM Class IV, measures should be considered to minimize project impacts.	
State		
Anza-Borrego Desert State Park (California State Parks 2005)		
Real Property Additions and Management, pages 3-48 to 4-49		
Goal 2: Monitor and reduce impacts to park resources and visitor experience due to adjacent land uses.	The proposed project would introduce structurally prominent, industrial-appearing features into an otherwise predominantly natural-appearing landscape. The resulting visual impacts within the park would be significant and unmitigable and would not be consistent with the goal of reducing impacts to park resources and visitor experiences. See Figures 4.18-6A through 4.18-7B for views within the park.	NO
Guideline 2a: Work to minimize or contain negative effects from lands adjacent to the park, such as: encroaching developments, the planting and invasion of exotic species, feral or domestic animals, watershed pollution, water pumping, etc.	The proposed project would introduce structurally prominent, industrial-appearing features into predominantly natural-appearing landscapes adjacent to the park and within the park viewshed. The resulting visual impacts would adversely affect park resources and visitor experiences.	NO
Goal 4: The department shall work with local agencies, Caltrans, and utility companies to minimize the adverse impacts associated with developments.	The proposed project would introduce structurally prominent, industrial-appearing features into predominantly natural-appearing landscapes adjacent to the park and within the park viewshed. The resulting visual impacts would be significant and would adversely affect park resources and visitor experiences.	NO
Local		
Imperial County General Plan (County of Imperial 1993)		
CONSERVATION AND OPEN SPACE ELEMENT		
Goals and Objectives, Implementation Programs and Policies, Pages 47-63		
Preservation of Visual Resources **Goal 7:** The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity. Objective 7.1 Encourage the preservation and enhancement of the natural beauty of the desert and mountain landscape.	Within Imperial County, the proposed project would result in significant visual impacts. The proposed project would not be perceived as enhancing the aesthetic character of the region or the natural beauty of the desert and mountain landscape. See Figures 4.18-2A through 4.18-7B for views within the county.	NO
Preservation of Open Space **Goal 10:** Open space shall be maintained to protect the aesthetic character of the region, protect natural resources, provide recreational opportunities, and minimize hazards to human activity. **Objective 10.9.** Conserve desert lands within the county's jurisdiction for wildlife protection, recreation, and aesthetic purposes.	Within Imperial County, the proposed project would result in significant visual impacts. The proposed project would not be perceived as protecting the aesthetic character of the region or the natural beauty of the desert and mountain landscape. See Figures 4.18-2A through 4.18-7B for views within the county.	NO

3.20 Water Resources

This section describes the existing hydrology and water quality conditions that could be affected by implementation of the OWEF. The Study Area for the proposed OWEF encompasses all surface and groundwater resources that could be affected by construction and operation. Because pollutants can be transported downstream or down-gradient to sensitive receiving waters, downstream receiving waters were also considered in the Study Area. The current condition and quality of these water resources was used as the baseline against which to compare potential impacts of the Proposed Action, as discussed in Section 4.19. In addition, existing laws and regulations applicable to water resources in the Study Area are described (see Section 3.20.2). In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Proposed Action.

3.20.1 Environmental Setting

In preparing this environmental setting, data collection was conducted through review of the following resources: aerial photographs; U.S. Geological Survey (USGS) topographic maps; National Hydrography Dataset (NHD) and CalWater GIS data; Water Quality Control Plan (Basin Plan) for the Colorado River Basin Regional Water Quality Control Board (RWQCB); the 2006 Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments from the State Water Resources Control Board (SWRCB); groundwater basin data from Bulletin 118 – Update 2003 published by the California Department of Water Resources (DWR); flood hazard data from the Federal Emergency Management Agency (FEMA); relevant studies prepared for the U.S. Gypsum Expansion and Modernization Project; and materials provided by the project Applicant, Ocotillo Express LLC.

The proposed OWEF is located primarily on lands administered by the BLM in the southwestern portion of Imperial Valley. The Proposed Action site covers an area approximately one to five miles west of the community of Ocotillo and approximately 25 miles west of El Centro. This area is located within the Colorado River Basin Hydrologic Region (HR), one of ten hydrologic regions in California that correspond with major watersheds and drainage areas, as established by the California DWR for management purposes. Being located within the Colorado River Basin HR, the Proposed Action is subject to management direction of the Water Quality Control Plan (Basin Plan) for the Imperial Valley Planning Area, under jurisdiction of the Colorado River Basin RWQCB.

Climate in the environmental setting area is generally subtropical, with hot summers and typically mild winters. The average annual air temperature is 72 degrees Fahrenheit and average annual rainfall is less than three inches per year, with most rainfall occurring during the winter months or in association with summer storms, which tend to be of shorter duration and higher intensity than winter storms (IID, 2009b). Table 3.2-1 (El Centro Monthly Average Temperature and Precipitation), as presented in Section 3.2 (Air Resources), describes average temperature and precipitation measured in El Centro east of the Proposed Action site. Table 3.20-1, below, provides an additional summary of climate characteristics for the Imperial Valley.

Table 3.20-1. Imperial Valley Climate Characteristics

Climate Characteristic	Annual Value
Average Precipitation (93-year record)	2.86 inches
Minimum Temperature, Jan 1937	16.0 degrees Fahrenheit
Average Minimum Temperature, 1914 – 2006	29.0 degrees Fahrenheit
Maximum Temperature, July 1995	121.0 degrees Fahrenheit
Average Maximum Temperature, 1914 – 2006	115.2 degrees Fahrenheit

Source: IID, 2009b.

Surface water and groundwater resources in the proposed OWEF area are discussed in Sections 3.20.1.1 and 3.20.1.2, respectively. As discussed in Section 3.20.1.2, local groundwater resources within the Ocotillo-Coyote Wells Sole Source Aquifer (SSA) would not be pumped by the Applicant for use in construction, operation, or decommissioning of the proposed OWEF. However, as stated below in Section 2.20.1.2 (see section titled "Dixeland Mine Groundwater"), groundwater resources along the eastern edge of the Ocotillo-Coyote Wells SSA may be used for this project. The water supply required for construction, operation, and decommissioning of the proposed OWEF is proposed to be obtained from a private groundwater well in the Pine Valley area of eastern San Diego County. In addition to the Pine Valley groundwater source, other sources of water that may be used to meet the project's water supply requirements include the following: City of Brawley treated municipal water, Vulcan Materials Dixieland Mine groundwater supply well, Seeley County Water District (SCWD) treated municipal water, and Imperial Irrigation District (IID) West-Side Canal water. Each of these water sources are summarized below and further discussed throughout this section and in Section 4.19, as applicable.

- **Pine Valley – private groundwater supply well.** Water may be purchased from a private well owner near Pine Valley, approximately 50 miles west of the Proposed Action site, and trucked to the project site. Pine Valley groundwater resources are discussed in detail below, in Section 3.20.1.2 (see "Campo-Cottonwood Sole Source Aquifer"), and in the discussions under "Water Supply Reliability" subheadings throughout Section 4.19. Pine Valley groundwater resources are also discussed in a report provided by the Applicant and included as Appendix P to this EIS/EIR. The discussions of water supply reliability presented throughout this section and Section 4.19 focus primarily on Pine Valley groundwater because the other potential water sources identified for the project are either regulated under existing management plans and/or have been assessed under other studies or plans which demonstrate their supply reliability and are incorporated by reference throughout this EIS/EIR; the Pine Valley area is non-adjudicated (dicussed further in Section 3.20.1.2) and this groundwater source is the only potential water source for the project which is not regulated or managed under an existing law, plan, or permit with respect to supply reliability.

  The County of San Diego, Department of Planning and Land Use, has determined that the selling (or giving) of groundwater pumped from this Pine Valley well can be considered legal nonconforming and therefore subject to Nonconformity Regulations of the San Diego County Zoning Ordinance §6852, and that existing groundwater extraction operations as described in San Diego County Zoning Ordinance §6864 may occur (County of San Diego, 2003). Accordingly, the same quantity of water which has historically been exported from this well (understood to be 28 acre-feet per year [afy]) may continue to be exported as a permissible activity, and would not require a modification permit from San Diego County. Increasing the quantity of water exported from this well would require a Major Use Permit from the County. The private well owner and the project Applicant are actively coordinating with the County to ensure compliance with all Zoning Ordinances and associated permitting requirements; for instance, if it is determined that the project's use of this Pine Valley well would cause the groundwater export rate to exceed 28 afy and require a modification permit from San Diego County. The County's ordinances are discussed below in Section 3.20.2.3, under "San Diego County."

- **City of Brawley - treated municipal wastewater.** The City of Brawley, located approximately 45 miles northeast of the community of Ocotillo, has provided written confirmation to the project Applicant that the City is able to provide up to 250,000 gallons of water per day, or approximately 0.76 acre-feet per day, for the period commencing December 2011 through December 2012 (City of Brawley, 2011); this is a peak pumpage rate and it is anticipated that the actual daily quantity of water provided by the City of Brawley for the project would fluctuate, and would total a quantity agreed upon between the Applicant and the City of Brawley in a written contract that would be finalized prior to the onset of project construction, if this source is used to meet the project's water supply requirements. City of Brawley water would be provided as treated municipal wastewater from the city's water treatment plant, which has existing capacity to treat 16,800 afy of water and an anticipated capability of expanding to 33,600 afy (City of Brawley, 2010). The City of Brawley completed an Urban Water Management Plan (UWMP) in 2010; in accordance with California Water Code §10612(b), the UWMP includes assessment of current demands and supplies over a 20-year planning horizon and considers various drought scenarios. The Brawley water source is east of the project site, with a travel distance for water trucks of approximately 39 miles one way.

- **SCWD – treated municipal wastewater.** The Seeley County Water District owns and operates the water treatment and distribution system infrastructure in the unincorporated community of Seeley, located approximately eight miles west of El Centro and ten miles north of the U.S.-Mexico border (BECC, 2011). Due to the size of the SCWD water distribution system, an UWMP is not required per California Water Code Sections 10610 through 10656 (IID, 2009d). However, the SCWD enacts demand management measures (DDMs) published by the California Urban Water Conservation Council (CUWCC) and supported by DWR, which are typically included as part of an UWMP (IID, 2009d). SCWD could provide a source water for the proposed OWEF, in the form of treated municipal water from the Seeley County Wastewater Treatment Plant (WWTP). The Seeley County WWTP houses a series of five treatment ponds, including two 0.12-acre "reactor" ponds and three 0.14-acre sedimentation ponds (CEC, 2010). The treatment facility discharges effluent treated to secondary standards via an unlined channel to the New River, and operates under a New River discharge permit from the RWQCB (CEC, 2010). The Seeley County WWTP has an average demand of 0.245 million gallons per day (gpd), although the current capacity of the WWTP is 1.08 million gpd (IID, 2009d). As such, the WWTP has sufficient capacity to meet the water supply requirements of the proposed OWEF.

- **Vulcan Materials - Dixieland Mine groundwater supply well.** Water pumped from an existing supply well at the Dixieland Mine, east of the project site, may be purchased from the Vulcan Materials Company, which operates the well under a Conditional Use Permit (CUP) issued by Imperial County. The existing CUP allows for brackish water from the Dixieland Mine well to be used on-site for dust control and mining operations (Imperial County, 2005). The CUP limits annual groundwater pumping from this well to 200 afy, and specifies that the groundwater may only be used on the Dixieland Mine property (Imperial County, 2005). The County of Imperial has indicated that an amendment to the CUP may be sought to allow for off-site use of this water (Pattern, 2011). A groundwater investigation was conducted at the Dixieland Mine site in 2005, prior to installation of the well (EMKO, 2005). This investigation is discussed in Section 3.20.1.2 (see "Dixieland Mine Groundwater"). The Dixieland water source would require a travel distance for water trucks of approximately 15 miles one way.

- **IID - West-Side Canal water.** Water may be purchased from the IID and transported by truck from canals near Dixieland, approximately 20 miles to the east of the OWEF site. Only lands within the All-American Canal (AAC) Service Area Boundary can receive water from the IID, unless IID agrees to sell or lease conserved water pursuant to a water conservation and transfer agreement. The Applicant has contacted the IID about obtaining raw canal water from the West-Side Canal for the project, and IID indicated that approximately 25 afy of canal water may be obtained through the Interim Water Supply Policy (IWSP) for Non-Agricultural Projects (Pattern, 2011). The IWSP for Non-Agricultural Projects currently designates up to 25,000 afy of water for potential Non-Agricultural Projects within IID's water service area, to be available for other users until such Non-Agricultural Projects are implemented and require the reserved water supply (IID, 2009c). Use of IID canal water outside of the IID service area, but within Imperial County, would require approval from the San Diego County Water Authority (SDCWA) due to contractual water conservation and transfer agreements between Imperial County and the SDCWA; negotiations between IID and SDCEA are near completion to allow the use of IID canal water for construction purposes throughout Imperial County (Pattern, 2011).

The following sections characterize the existing environmental setting for the proposed OWEF Study Area, including information relevant to surface water drainage, flooding, water quality, and groundwater resources.

3.20.1.1 Surface Water

Surface waters on the proposed OWEF site are portrayed on Figure 3.20-1 (Surface Waters and Wetlands), which identifies streams and wetlands on the site (wetland resources are further discussed in Appendix D, Biological Technical Report). As mentioned above, the proposed OWEF is located within the Imperial Valley Planning Area of the Colorado River Basin Hydrologic Region. Major surface water features in the region include the Colorado River (east of the OWEF site), the Salton Sea (north of the OWEF site), the New River (east of the OWEF site), the Alamo River (east of the OWEF site), and several major canals, including West Side Main Canal, Central Main Canal, East Highline Canal, All American Canal, and Coachella Canal (IID, 2009a). With the exception of some of the man-made canals, surface waters in the area generally drain towards the Salton Sea (IID, 2009b). The New and Alamo Rivers convey agricultural irrigation runoff from farmlands in the Imperial Valley, surface stormwater runoff, and smaller amounts of treated municipal and industrial wastewaters. The New River also conveys agricultural drainage, treated and untreated sewage, and industrial waste from Mexicali, Mexico. Colorado River water is imported to the area via the All American Canal and provides the dominant water supply used for irrigation, industrial purposes, and domestic supply. (Colorado River Basin RWQCB, 2006)

In addition to the major hydrologic features described above, a number of ephemeral washes that typically only convey water in response to precipitation events originate in the mountains north, west, and south of the proposed OWEF site. Myer Creek, which flows in the north-easterly direction, has a drainage area of 21.8 square miles and flows through the community of Ocotillo; there is both commercial and residential development in the Myer Creek floodplain near Ocotillo (Imperial County, 2007).

Palm Canyon Wash (southwest to northeast flow) and Lava Flow Wash (northwest to southeast flow), as well as various smaller washes, run through the proposed OWEF site. Signs of previous flooding events indicate that the potential for flash flooding exists during major storm events. It is anticipated that surface water flow hazards such as scouring at the wind turbine bases would be addressed during the project design phase (NAA, 2010). This design will ensure that anticipated scour or stormflow diversion during a 100-year flood will not compromise the structural integrity of turbines nor pose a hazard to adjacent roadways or rail lines that is a direct result of project facilities.

Water Quality

Surface waters in Imperial County are generally categorized into three different types: freshwater, brackish water, and saline water. The water quality categories are summarized below, as described in the Water Element of the Imperial County General Plan (Imperial County, 1993).

- Freshwaters are generally defined as having Total Dissolved Solid (TDS) concentrations of less than 1,000 parts per million (ppm). The All-American Canal and other delivery channels which convey irrigation water to the agricultural fields are considered freshwater.
- Brackish waters are generally defined as having TDS concentrations in the range of 2,000 to 4,000 ppm. The Alamo River, New River, and agricultural drains that flow into these rivers or directly into the Salton Sea are considered brackish.
- Saline water in the area is represented by the Salton Sea, which has TDS concentrations of approximately 44,000 ppm, roughly 25 percent higher than ocean water.

Surface waters in Imperial County pass through a salinity gradient between the water quality categories summarized above; this gradient exists from the Colorado River to the Salton Sea, and results from the combined effects of high evaporation rates, high temperatures, low annual rainfall, and leaching of salts from agricultural fields (Imperial County, 1993). Salinity also increases via wastewater discharge into the New River.

Water quality objectives and total maximum daily load (TMDL) requirements for the Imperial Valley Planning Area are described in the Basin Plan for the Colorado River Basin HR, including the New River, Alamo River, and Imperial Valley drains in the eastern portion of the Proposed Action Study Area. The purpose of water quality objectives and requirements described in the Basin Plan is to protect designated beneficial uses, which are either consumptive (municipal, industrial, and irrigation) or non-consumptive (recreation and habitat). Designated beneficial uses relevant to surface waters in the Proposed Action Study Area are identified below, in Table 3.20-2.

Table 3.20-2. Designated Beneficial Uses for Surface Waters in the OWEF Vicinity

Waterway	Beneficial Use*												
	MUN	AGR	AQUA	FRSH	IND	GWR	RECI	RECII	WARM	COLD	WILD	POW	RARE
All American Canal System	X	X	X	X[1]	X	X	X[2]	X[2]	X		X	X	X[3]
Alamo River (Drain)				X			X[5]	X	X		X	P	X[3]
Imperial Valley Drains				X			X[2, 5]	X[2]	X		X		X[3]
New River (Drain)				X	P		X[5]	X	X		X		X[3]
Salton Sea			X		P		X	X	X		X		X
Coyote Creek	P					X	X	X	X		X		X
Washes (Ephemeral)				I[4]		I		I	[6]		I		

X: Existing Beneficial Use

P: Potential Beneficial Use

I: Intermittent Beneficial Use

- MUN: Municipal and Domestic Supply. Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- AGR: Agriculture Supply. Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
- AQUA: Aquaculture. Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.
- IND: Industrial Service Supply. Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
- GWR: Groundwater Recharge. Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting salt water intrusion into fresh water aquifers.
- REC I: Water Contact Recreation. Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, and use of natural hot springs.
- REC II: Non-Contact Water Recreation. Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- WARM: Warm Freshwater Habitat. Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- COLD: Cold Freshwater Habitats. Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- WILD: Wildlife Habitat. Uses of water that support terrestrial ecosystems including, but not limited to, the preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- FRSH: Freshwater Replenishment. Uses of water for natural or artificial maintenance of surface water quantity or quality.
- POW: Hydropower Generation. Uses of water for hydropower generation.
- RARE: Preservation of Rare, Threatened, or Endangered Species. Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

1 Some very limited spillage of canal water occurs providing freshwater replenishment to Salton Sea.

2. Unauthorized use.

3. Rare, endangered, or threatened wildlife exists in or utilizes some of these waterway(s). If the RARE beneficial use may be affected by a water quality control decision, responsibility for substantiation of the existence of rare, endangered, or threatened species on a case-by-case basis is upon the California Department of Fish and Game on its own initiative and/or at the request of the Regional Board; and such substantiation must be provided within a reasonable time frame as approved by the Regional Board.

4. Applies only to tributaries of the Salton Sea.

5. The only REC I usage that is known to occur is from infrequent fishing activity.

6. Use, if any, to be determined on a case-by-case basis.

Source: Colorado River Basin RWQCB, 2006.

Flood Hazard Areas

Imperial County has developed a Flood Management Plan (FMP) to identify areas prone to flooding and flood-related impacts, to develop and implement programs to reduce flooding hazards, and to see that natural and beneficial functions of floodplains within the County are protected (Imperial County, 2007). The FMP describes that the community of Ocotillo is at risk of flooding due to its location at the base of an alluvial fan. This fan was formed by Myer Creek, which flows in a northeasterly direction through Ocotillo, draining over 21.8 square miles. Myer Creek is a tributary of Coyote Creek in western Imperial

County. During heavy rainstorms, Myer Creek carries major runoff from the Jacumba Mountains. (Imperial County, 2007)

Under the National Flood Insurance Program (described below, in Section 3.20.2.1), the Federal Emergency Management Agency (FEMA) has estimated the boundaries of 100-year floodplains, or Flood Hazard Areas, as provided on Flood Insurance Rate Maps (FIRMs). These maps define the predicted boundaries of 100-year floods, or the area of land anticipated to be inundated during a 100-year storm event, or storms with a one percent chance of occurring each year. Not all streams have floodplain mapping by FEMA or any other agency; this does not mean the floodplain is not there, only that the floodplain has not been mapped. Any housing or residential development that is constructed in a Flood Hazard Area must comply with floodplain management ordinances. In the Proposed Action area, FIRM #06025C1976C, Panel 1976 of 2300 (FEMA, 2008), indicates a Flood Hazard Area surrounding Myer Creek and Coyote Wash, also as described in the County's FMP. Figure 3.20-2 (FEMA-Designated Flood Hazard Areas) shows that several Flood Hazard Areas run in an east-west direction through Site 1, and a small portion of Flood Hazard Area runs in a north-south direction through part of Site 2.

Jurisdictional Drainages

Jurisdictional drainages are discussed in Section 3.18.1.4 (Federal and State Jurisdictional Aread) of this EIS/EIR, as based on detailed data from the Biological Technical Report (BTR) provided as Appendix D to this EIS/EIR. As described in Section 3.2.4 (Jurisdictional Waters of the United States/State) of the BTR, a formal jurisdictional delineation that was conducted within the study area identified areas under the jurisdiction of both the U.S. Army Corps of Engineers (ACOE) and the California Department of Fish and Game (CDFG) throughout the study area. ACOE jurisdictional non-wetland Waters of the U.S. within the study area total 239.46 acres. No ACOE jurisdictional wetlands occur within the study area. CDFG jurisdictional areas within the study area total 723.74 acres and consist of 519.44 acres of wetlands and 204.30 acres of streambed. These federal and State jurisdictional areas are described in Section 3.18.1.4 of this EIS/EIR and identified on Figures 14A through 14D and Figures 15A through 15D, respectively, of the BTR (Appendix D).

Surface water features in the proposed OWEF area are ephemeral drainages characterized by an observable Ordinary High Water Mark (OHWM), a defining element in identifying the limits of federal jurisdiction for non-wetland waters, administered by the ACOE. Federal jurisdiction over non-wetland Waters of the United States extends to the OHWM, which is defined in 33 CFR Part 328.3(e) as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris or other appropriate means that consider the characteristics of the surrounding areas" (ACOE, 2008). In the Arid West Region of the Western U.S., including the proposed OWEF area, most surface water is ephemeral and identification of the OHWM is made using stream geomorphology and vegetation response to the dominant stream discharge (ACOE, 2008).

As mentioned above and detailed in Appendix D, drainages identified as Waters of the U.S. have been identified throughout the proposed OWEF site, particularly in the northern and eastern areas, and these drainages generally flow from the southwest to the northeast. Areas identified as subject to jurisdiction of the CDFG (jurisdictional vegetation) have also been identified on the proposed OWEF site. See Figures

3.20-1 and 3.20-2. As described below in Section 3.20.2.1, Section 404 of the federal Clean Water Act (CWA) authorizes the ACOE to regulate the discharge of dredged or fill material to the Waters of the U.S., including wetlands. Discharges to waters of the state are regulated by the Regional Water Quality Control Boards as part of CWA Section 401 certification and California's Porter-Cologne Water Quality Control Act program. The proposed OWEF is located within the jurisdiction of the Colorado River Basin RWQCB.

3.20.1.2 Groundwater

Figure 3.20-3 (Groundwater Resources) shows that the proposed OWEF is underlain by the Coyote Wells Valley Groundwater Basin, which is described in further detail below, in the discussion of the Ocotillo-Coyote Wells Sole Source Aquifer.

As described in the introduction to this Environmental Setting discussion, the OWEF site is located within the Colorado River Hydrologic Region (HR) and is subject to management direction of the Basin Plan for the Imperial Valley Planning Area, under jurisdiction of the Colorado River Basin RWQCB. The Pine Valley area is located in the South Coast HR, and is subject to management direction of the Basin Plan for the San Diego Basin, under jurisdiction of the San Diego Basin RWQCB.

The environmental setting for groundwater resources is defined by groundwater which underlies the Proposed Action site, as well as off-site groundwater which may be pumped to meet project water supply requirements. The proposed OWEF is located within the surface recharge area of the Ocotillo-Coyote Wells Sole Source Aquifer (SSA), and the construction water source identified near Pine Valley is located within the surface recharge area of the Campo-Cottonwood SSA (see Figures 3.20-4 and 3.20-5). A sole source aquifer is an area of groundwater resources defined by the U.S. Environmental Protection Agency (EPA) as an aquifer which supplies more than 50 percent of a community's drinking water. Any project which receives a federal grant or loan guarantee and which has the potential to contaminate a sole source aquifer, as determined by the EPA, should be modified to reduce or eliminate the risk. As described below in Section 3.20.2.1, Section 1424(e) of the U.S. Safe Drinking Water Act (SDWA) authorizes the EPA to evaluate projects located within a designated SSA, if the project is financially assisted by federal grants or federal loan guarantees. The proposed OWEF is subject to EPA review to determine whether the project should be modified to reduce or eliminate potential risk of contamination to a designated SSA. Since publication of the Draft EIS/EIR for the proposed OWEF, the EPA has determined that the project will not adversely affect the Ocotillo-Coyote Wells sole source aquifer (EPA, 2011b).

Groundwater resources in the project area are not adjudicated, which means that overlying land owners may use the groundwater on an "equal and correlative" basis, such that all property owners above a common aquifer possess a shared right to reasonable use of the aquifer, and a user cannot take unlimited quantities without regard to the needs of other users (BLM, 2001). Surplus groundwater may be appropriated for use on non-overlying lands, provided such use will not create overdraft conditions; permits are not required for the use of underlying groundwater, but the appropriation of surplus groundwater is subordinate to the correlative rights of overlying users (BLM, 2001).

Groundwater overdraft may be long-term, where substantial permanent new groundwater demands are introduced, or this effect may be short-term and seasonal, where new groundwater demand(s) are introduced but are temporary, such that the existing balance of groundwater removal and recharge is restored once the new demand(s) ceases. As defined by the California DWR in *California's Groundwater*

Bulletin 118, Update 2003, groundwater overdraft is the condition of a groundwater basin in which the amount of water withdrawn by pumping over the long term exceeds the amount of water that recharges the basin, and overdraft is characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years (DWR, 2003b). The DWR has also identified 11 groundwater basins in California as being in a state of "critical overdraft," with critical overdraft defined as follows: A basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts (DWR, 2003b). The DWR has not identified the groundwater basins located within the proposed OWEF study area (described below) as being in overdraft or critical overdraft conditions; however, in the State of California groundwater management is a local responsibility, and the decision of whether a groundwater basin is in a condition of overdraft is the responsibility of the local groundwater or water management agency (DWR, 2003b). Overdraft conditions have not been analyzed for most groundwater basins in California due to a lack of quantitative long-term data and prohibitive costs associated with the collection of such data. However, in the absence of quantitative long-term data, the presence of environmental effects that result from the presence of long-term groundwater overdraft conditions may be used to make reasonable assumptions about the conditions of a particular groundwater basin. These effects include the following: consistently declining water levels measured in the affected basin; water quality degradation such as increasing Total Dissolved Solids (TDS) concentrations; and/or land subsidence (sinking) in the affected basin.

All groundwater resources with the potential to be affected by the proposed OWEF are discussed below.

Ocotillo-Coyote Wells Sole Source Aquifer

The Proposed Action is underlain by the Coyote Wells Valley Groundwater Basin (DWR #7-29), and is located within the surface recharge area of the Ocotillo-Coyote Wells SSA. Figure 3.20-4 (Ocotillo-Coyote Wells SSA Surface Recharge Area) shows the surface recharge area of this SSA. Portions of other groundwater basins are also within the Ocotillo-Coyote Wells SSA, including the following: Jacumba Valley (DWR #7-47), Davies Valley (DWR #7-61), Imperial Valley (DWR #7-30), Vallecito-Carrizo Valley (DWR #7-28), and Canebrake Valley (DWR #7-46). As noted above, groundwater from the Ocotillo-Coyote Wells SSA would not be pumped by the Applicant for use in construction, operation, or decommissioning of the proposed OWEF. Therefore, the only potential the Proposed Action would have to affect local groundwater would be through earth-disturbing activities that could encounter underlying resources, and/or through alterations to groundwater recharge patterns resulting from the introduction of permanent infrastructure. These effects (discussed in Section 4.19) would be site-specific; the Coyote Wells Valley Groundwater Basin is the only groundwater basin in the Ocotillo-Coyote Wells SSA with the potential to be affected by construction activities and/or alterations to recharge patterns. This groundwater basin is described below.

- **Coyote Wells Valley Groundwater Basin.** This groundwater basin has a surface area of 64,000 acres (approximately 100 square miles), and underlies portions of both San Diego and Imperial Counties. To the north, the basin is bounded by impermeable metasedimentary rocks of the Coyote Mountains and by the Elsinore fault zone. To the west and southwest, the basin is bounded by impermeable rocks of the Jacumba Mountains. To the southeast, the basin is truncated by the United States-Mexico border. To the east, the basin is bounded by a roughly north-south barrier from Superstition Mountain through the Yuha Buttes to the United States-Mexico border. To the northeast, part of the basin's border is comprised by a surface drainage divide connecting the Coyote Mountains with Superstition Mountain. (DWR, 2004a)

Depth to groundwater in the vicinity of the proposed OWEF site ranges from as much as 300 feet below ground surface (bgs) in the northwestern portion of the site to as little as 45 feet bgs in the southeast portion (NAA, 2011).

Water Bearing Units. Primary water bearing units in the Coyote Wells Valley Groundwater Basin include Holocene and Pleistocene alluvial deposits. Unconsolidated sediments reach up to 650 feet thick, with water-bearing zones most productive in the Holocene alluvium located between 100 and 300 feet bgs. Unconfined shallow groundwater is present in parts of the basin, and historical well logs (1970s) indicate confined groundwater conditions for several wells near Ocotillo and Coyote Wells, in the Proposed Action area. Primary recharge to the basin occurs through percolation of precipitation and ephemeral runoff from the surrounding mountains. The main surface water drainages in the area are Palm Canyon Wash and Coyote Wash. (DWR, 2004a)

The Coyote Wells Valley Groundwater Basin is currently understood to be a two-layer aquifer system; wherein the upper layer (Layer 1) consists of the alluvial deposits and the lower layer (Layer 2) is composed of the Palm Springs and Imperial formations, which have been uplifted in the area east of Ocotillo and are relatively near the ground surface (B-E, 2004). The United States Geological Survey (USGS) monitors 20 wells in the area, which indicate that groundwater levels in both Layer 1 and Layer 2 have generally been declining since the 1970s (B-E, 2004). The water levels in Layer 1, which are mainly controlled by pumping, indicate average rates of decline ranging from 0.4 to 0.13 feet per year (B-E, 2004). Groundwater level trends do not appear to fluctuate in direct response to changes in the rate of precipitation, indicating a lag-time associated with distance between washes and monitored wells, and/or significant thickness of the unsaturated zone (B-E, 2004).

Overdraft Conditions. The recent groundwater monitoring and analyses described above indicate that the Coyote Wells Valley Groundwater Basin is in a state of overdraft (B-E, 2004; Todd, 2007). As defined by the DWR's Bulletin 118 (2004), groundwater overdraft occurs when the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions; overdraft can be characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years. Withdrawing groundwater from an overdrafted basin and/or altering the surface permeability such that rates of recharge are reduced would exacerbate overdraft conditions.

Groundwater Quality. The California DWR (2004) describes that groundwater quality in the productive parts of the Coyote Wells Valley Groundwater Basin is characterized by sodium bicarbonate-chloride, while the concentration of total dissolved solids (TDS) ranges from 750 to 1,240 mg/L in shallow wells to 300 to 450 mg/L in deeper wells. The DWR also indicates that fluoride levels in some wells are as high as 3.5 mg/L and may be related to pre-Quaternary sedimentary deposits or from thermal water (85 to 90 degrees Fahrenheit) associated with an extension of the Elsinore Fault zone. (DWR, 2004a) The EPA has set a maximum contaminant level of 4.0 mg/L for fluoride in drinking water (EPA, 2011a).

The USGS monitors wells in the Ocotillo-Coyote Wells Groundwater Basin for the following: physical properties including pH, specific conductance, and temperature; general minerals including chloride, sodium, sulfate, iron, and manganese. In general, wells located east of Ocotillo have higher concentrations of boron, chloride, sodium, and sulfate than wells near Ocotillo, a difference which could be due to varying geologic formations. High concentrations of chloride, sodium, and boron are indicative of low permeability in the Layer 2 formations. (B-E, 2004; Todd, 2007)

Campo-Cottonwood Sole Source Aquifer

Pine Valley is located in eastern San Diego County, approximately 50 miles west of the proposed OWEF site, within the designated surface recharge area of the Campo-Cottonwood SSA, and within the jurisdiction of the San Diego Basin RWQCB (in addition to coordination with the Colorado River Basin RWQCB for construction at the proposed OWEF site). Figure 3.20-5 (Campo-Cottonwood SSA Surface Recharge Area) shows the surface recharge area of this SSA. The surface recharge area of the Campo-Cottonwood SSA encompasses the following underlying groundwater basins, as defined by the DWR: Cottonwood Valley Groundwater Basin (DWR #9-27), Campo Valley Groundwater Basin (DWR #9-28), and Potrero Valley Groundwater Basin (DWR #9-29). As described above, these groundwater basins are not adjudicated, which means that overlying land owners may use the groundwater with no permit required, and that surplus groundwater may be used on non-overlying lands, such as would occur under the proposed OWEF, only where such use would not create overdraft conditions in the source aquifer, including with consideration to other uses of the source aquifer. Each of the defined groundwater basins encompassed within the surface recharge area of the Campo-Cottonwood SSA is described below.

- **Cottonwood Valley Groundwater Basin**. The Cottonwood Valley Groundwater Basin encompasses 3,850 acres (6.0 square miles), underlies portions of the Cottonwood, Cameron, and La Posta Valleys, and is bounded by crystalline rocks of the Peninsular Ranges except to the west where it is bounded by Moreno Reservoir, and to the south where it has been truncated at the U.S.-Mexico border. Cottonwood and La Posta Creeks drain westward, to Moreno Reservoir. Average annual precipitation is approximately 15 to 21 inches. (DWR, 2004b)

  Water Bearing Units. Primary water bearing units in the Cottonwood Valley Groundwater Basin include Quaternary alluvium and residuum. Alluvium is composed of gravel, sand, silt, and clay in deposits with maximum thickness of approximately 100 feet, while residuum is bedrock that has weathered in place. Groundwater storage capacity is unknown. (DWR, 2004b)

  Overdraft Conditions. Water levels monitored at one groundwater well in this basin between 1953 and 1974 ranged approximately four feet (DWR, 2004b). DWR does not specify whether this four-foot change is positive or negative; however, over a period of 21 years, a change of four feet is not substantial, whether the change is positive or negative. Overdraft conditions are not known.

  Groundwater Quality. Local groundwater in Cottonwood Valley is dominantly calcium bicarbonate in character, with TDS concentration ranging from approximately 130 to 645 mg/L (DWR, 2004b).

- **Campo Valley Groundwater Basin**. The Campo Valley Groundwater Basin encompasses 3,550 acres (5.5 square miles), underlies Campo Valley, and is bounded by non-permeable crystalline rocks of the Peninsular Ranges. This groundwater basin is located approximately 40 miles east of San Diego, is truncated to the south by the Mexican border, and is drained by Campo Creek. Average annual precipitation ranges from approximately 7 to 15 inches. Well yields are typically less than 40 gallons per minute (gpm). Recharge to this groundwater basin occurs through direct precipitation and septic effluent. (DWR, 2004c)

Water Bearing Units. The principal water-bearing unit of the Campo Valley Groundwater Basin is quaternary alluvium, with potential water-bearing capacity in the residuum derived from weathering of Cretaceous granitic rocks (although the residuum is not regionally significant). The Quaternary alluvium consists of gravel, sand, silt, and clay, and ranges in thickness from several feet to approximately 100 feet, with average thickness estimated to be approximately 55 feet. Storage capacity of the Campo Valley Groundwater Basin is estimated to be 63,450 acre-feet, with approximately 7,614 acre-feet estimated to be in storage in 1983. (DWR, 2004c)

Overdraft Conditions. Sufficient information is not available to construct a groundwater budget (DWR, 2004c). Therefore, overdraft conditions for the Campo Valley Groundwater Basin are not known.

Groundwater Quality. Water contained in the alluvium of the Campo Valley Groundwater Basin is characterized by calcium bicarbonate. Electrical conductivity readings are approximately 800 ▯mho. In the 1960s, TDS concentrations ranged from 219 to 480 mg/L, increasing to less than 800 mg/L in the 1970s. Groundwater in this basin is typically considered suitable for domestic and irrigation uses. (DWR, 2004c)

- **Potrero Valley Groundwater Basin**. The Potrero Valley Groundwater Basin encompasses 2,020 acres (3.2 square miles), bounded by impermeable crystalline rocks of the Peninsular Ranges. This groundwater basin, located approximately 30 miles east of San Diego and two miles north of the Mexican border, drains westward via Potrero and Big Potrero Creeks. Average annual precipitation ranges from 7 to 11 inches. (DWR, 2004d)

  Water Bearing Units. Principal water bearing deposits in the Potrero Valley Groundwater Basin are Quaternary age alluvium and residuum. Recharge to this basin is assumed to be from ephemeral stream flow and percolation. (DWR, 2004d)

  Overdraft Conditions. Groundwater level trends and storage capacity of the Potrero Valley Groundwater Basin are unknown (DWR, 2004d). Overdraft conditions relevant to this groundwater basin are unknown.

  Groundwater Quality. Groundwater quality of the Potrero Valley Groundwater Basin is variable with calcium and sodium representing the dominant cations and bicarbonate and chloride as the dominant anions. TDS concentrations range from 283 to 305 mg/L. Groundwater is suitable for domestic and irrigation use.

The Pine Valley Mutual Water Company (PVMWC), which provides water service to the small rural area of Pine Valley, describes that local wells produce water from the fractured rock system of the Descanso hydrologic sub-area in the Sweetwater Hydrologic Unit (PVMWC, 2010). The PVMWC has eight active groundwater wells, with production rates that vary seasonally and annually, ranging between approximately 600 gallons per minute (gpm) and 1,000 gpm (PVMWC, 2010). The fact that production rates vary seasonally and annually indicates a direct response in groundwater level trends from changes in the rate of precipitation. Per the County of San Diego's *Groundwater Limitations Map*, the Pine Valley area receives some of the highest annual precipitation rates in the County, with an average of approximately 30 inches per year (County of San Diego, 2004).

The groundwater well in Pine Valley identified for use in construction and operation of the proposed OWEF is a privately owned well in a non-adjudicated area; although this well is located within the surface recharge area of the Campo-Cottonwood SSA, it is not located within one of the three defined groundwater basins that are encompassed by the Campo-Cottonwood SSA. Per San Diego County's *Guidelines for Determining Significance for Groundwater Resources*, fractured rock aquifers that have limited groundwater recharge and large groundwater users such as agricultural or other large operations may experience groundwater shortages (County of San Diego, 2007). However, the Pine Valley area is not considered to have "limited groundwater recharge" because, as mentioned above, groundwater resources in Pine Valley respond directly to precipitation rates, and Pine Valley is characterized by some of the highest annual precipitation rates in San Diego County. In addition, groundwater use in Pine Valley is characterized by rural residential users and distribution of water by the PVMWC primarily for residential purposes, and these uses are not characterized by "large groundwater uses such as agricultural or other large operations." Additionally, no fractured rock basins [in San Diego County] have been officially documented and mapped by the County as being in an overdraft condition (County of San Diego, 2007).

Monitoring and/or modeling data sufficient to indicate whether this area is affected by groundwater overdraft is not currently available. As described above, in the absence of quantitative long-term data, the presence of environmental effects of overdraft including consistently declining water levels, water quality degradation, and/or land subsidence may be used to make reasonable assumptions about overdraft conditions. In the Pine Valley area, there is no record of declining groundwater levels, declining groundwater quality, and/or land subsidence. In addition, the groundwater well proposed for use under the proposed OWEF is currently used as a water supply for other projects on non-overlying lands, which would be prohibited if the groundwater were in overdraft conditions. Due to all of these factors, it is reasonably assumed that the Pine Valley area is not affected by long-term overdraft conditions. Based on anecdotal information from the private well owner, groundwater supply availability is unaffected by normal year, dry year, and multiple dry years conditions; based on the well owner's experience, the well has historically not experienced variation in supply during drought years (NAA, 2011b). This issue is discussed further in Section 4.19.

In May of 2003, the County of San Diego Board of Supervisors directed the Chief Administrative Officer to conduct a comprehensive groundwater study for the Pine Valley area. The area assessed in this study included 29.3 square miles and two basins identified as "Pine North" and "Pine South." This groundwater study included a groundwater availability analysis, which determined that the sustainable yield for Pine South is not sufficient to meet water demand associated with the County's General Plan theoretical build-out, while the sustainable yield for Pine North is sufficient to meet water demands associated with all build-out scenarios. The County's groundwater study concluded that groundwater resources are adequate in both Pine South and Pine North basins to meet the demands under existing conditions and with the addition of residences if all discretionary permits currently in process were approved. (San Diego County, 2010)

The private Pine Valley groundwater well proposed for use under the project is screened approximately 200 feet below ground surface, cored and cased in upper alluvium near the surface and then fractured rock farther below. The static water level in this well is approximately 30 feet below ground surface. Water from this well is often used for construction demand for other projects and is not typically sold for human consumption; water quality information is not available for this well. Although specific numbers for water supply for this well are unavailable, based on anecdotal evidence and historical use, the potential water supply available from this well is estimated to be approximately 121 afy. Existing demand from other users of this water supply may vary widely depending on the time of year and active construction projects; however, based on anecdotal evidence of historical water sales from this well owner, the estimated existing demand associated with other users of this well is approximately 28 afy. For purposes of this analysis, this demand is estimated to grow at a steady rate for the next 20 years. (NAA, 2011b)

An assessment of water supply has been prepared for the Pine Valley water source under the proposed OWEF (see discussion in Section 3.20.2.2) and is incorporated by reference throughout Section 4.19 of this EIS/EIR, and included as Appendix P. Table 3.20-3, below, identifies estimated water availability for the Pine Valley water source described above.

Table 3.20-3. Pine Valley Groundwater Well Projected Water Availability (acre-feet)

Water Supply / Demand	Year				
	2012	2017	2022	2026	2032
Projected Availability					
FDB Licensed Bottled Water Distributor	0.01	0.01	0.01	0.01	0.01
Private Pine Valley Groundwater Well	121	121	121	121	121
Total Projected Availability	*121.01*	*121.01*	*121.01*	*121.01*	*121.01*
Projected Demands					
Other Users of the Well	28	33	38	43	48
OWEF Construction	50	0	0	0	0
OWEF Fire Suppression	0.03	0	0	0	0
OWEF Toilet Flushing	0.18	0.18	0.18	0.18	0.18
OWEF Drinking Water	0.01	0.01	0.01	0.01	0.01
Total Projected Demand	*78.22*	*33.19*	*33.19*	*43.19*	*48.19*
Difference (Availability minus Demand)	**42.79**	**87.82**	**82.82**	**77.82**	**72.82**

Source: NAA, 2011b.

Table 3.20-3 does not identify water supply availability for the overall Campo-Cottonwood SSA or the Pine Valley as a whole, but rather presents estimates of production capabilities for the private groundwater well that would be used to meet the project's water supply requirements. In addition, due to the well's location within the surface recharge area of a designated SSA, it is subject to review by the EPA, per Section 1424(e) of the U.S. Safe Drinking Water Act (SDWA). As previously mentioned, the EPA has determined that the proposed OWEF would not adversely affect the Ocotillo-Coyote Wells SSA; a determination has not yet been made regarding the Campo-Cottonwood SSA.

Dixieland Mine Groundwater

As described above, one potential water source for the project is an existing groundwater supply well located at the Dixieland Mine site and operated by Vulcan Materials Company under a CUP issued by Imperial County (Imperial County, 2005). A groundwater investigation was conducted at the Dixieland Mine site in 2005, prior to installation of the well (EMKO, 2005). This investigation is summarized below and referenced as applicable in Section 4.19.

The Dixieland Mine groundwater well is located more than 12 miles east of the community of Ocotillo, along the eastern border of the Coyote Wells Valley Groundwater Basin (this aquifer is discussed above;

see "Ocotillo-Coyote Wells Sole Source Aquifer"). The eastern portion of the Coyote Wells Valley Groundwater Basin consists primarily of Tertiary marine sediments which typically contain saline water with TDS levels of 1,000 mg/L or greater. Groundwater modeling studies indicate that flow in this basin generally occurs from the northwest to the southeast. The high-TDS saline water within the Tertiary marine sediments (which underlie Quaternary Alluvíum) flows both southward and eastward from the Ocotillo area. However, groundwater modeling studies have shown that the fresh water in the Quaternary Alluvium in the western part of the Coyote Wells Valley Groundwater Basin (where the proposed OWEF is located) does not flow into the eastern portion of the basin (wehre the Dixieland Mine well is located), but remains within the Ocotillo-Coyote Wells SSA. (EMKO, 2005)

The investigation conducted prior to construction of the Dixieland Mine well indicated that geologic units at the site are characterized by sand from zero to three feet bgs, red clay from three to 120 feet bgs, clean gravel from 120 to 200 feet bgs, and red clay from 200 to the total depth of the borehole at 240 feet bgs. A test well at the site measured depth to water at 60 ft bgs; the well was pumped for two hours at a rate of 225 to 235 gpm, after which the water level was again measured at 60 feet bgs. The test well was then pumped at approximately 230 gpm for 24 hours, after which the static water level was measured at 47 feet bgs. Additional pumping indicated that the water level did not decline more than about one foot during pumping. (EMKO, 2005)

The nearest groundwater wells to the Dixieland Mine site are located eight to twelve miles to the west and upgradient from the Dixieland Mine site. The pumping of 200 afy of water from the Dixieland Mine supply well is understood to have little to no effect on these or other upgradient wells. There are no naturally-occurring surface waters in the vicinity of the Dixieland Mine supply well, and man-made surface waters comprised of the Imperial Lakes development and IID's West Side Canal have no measurable interaction with local groundwater due to the presence of more than 100 feet of clay between the ground surface and the gravel aquifer at 120 feet bgs which supplies the Dixieland Mine well. (EMKO, 2005)

The Dixieland Mine supply well produces high-saline groundwater which is not suitable for potable or agricultural uses, without treatment to reduce TDS concentrations.

The existing Dixieland Mine groundwater supply well is capable of producing at least 325 to 350 gpm, with very little drawdown in the surrounding aquifer (EMKO, 2005). This production rate is more than adequate to meet the 200 afy of withdrawal authorized by the CUP (EMKO, 2005). If the Dixieland Mine well is used to provide water for the project, the existing CUP would be amended by Imperial County to allow for use of the water at the proposed OWEF site (Pattern, 2011).

3.20.2 Applicable Regulations, Plans, and Standards

3.20.2.1 Federal

Clean Water Act. The CWA (33 U.S.C. Section 1251 et seq.) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and has given the EPA the authority to implement pollution control programs. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant

Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. The Proposed Action is within the jurisdiction of the Colorado River Basin RWQCB (Region 7).

Section 402 of the Clean Water Act authorizes the California State Water Resources Control Board (SWRCB) to issue NPDES General Construction Storm Water Permit (Water Quality Order 99-08-DWQ), referred to as the "General Construction Permit." Construction activities can comply with and be covered under the General Construction Permit provided that they meet the following requirements.

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm-water and with the intent of keeping all products of erosion from moving offsite into receiving waters.
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

Projects that disturb one or more acres, including the Proposed Action, are required to obtain NPDES coverage under the Construction General Permits. The USEPA's NPDES Phase II Final Rule and the SWRCB NPDES General Permit No. CAS000004, "Waste Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) General Permit (referred to as the "MS4 General Permit") require that the County, as the MS4 operator, implement a Stormwater Management Program (SWMP) that reduces the discharge of pollutants to the "maximum extent practicable", that protects water quality, and that satisfies the requirements of the CWA according to California's MS4 General Permit (SWRCB, 2004). As such, the administration of NPDES regulations for the Proposed Action is the duty of Imperial County. MS4 General Permit coverage for the County must be renewed every five years, per jurisdiction of the Colorado River Basin RWQCB.

Section 401 of the CWA requires that any activity, including river or stream crossing during road, pipeline, or transmission line construction, which may result in discharges into a State waterbody, must be certified by the RWQCB. This certification ensures that the proposed activity does not violate State and/or federal water quality standards. The limits of non-tidal waters extend to the Ordinary High Water Mark (OHWM), defined as the line on the shore established by the fluctuation of water and indicated by physical characteristics, such as natural line impressed on the bank, changes in the character of the soil, and presence of debris.

Section 404 of the CWA requires a permit for construction activities involving placement of any kind of fill material into waters of the U.S. or wetlands. The ACOE may issue either individual, site-specific permits or general, nationwide permits for discharge into U.S. waters. A Water Quality Certification pursuant to Section 401 of the CWA is required for Section 404 permit actions. If applicable, construction would also require a request for Water Quality Certification (or waiver thereof) from the Colorado River Basin RWQCB. When an application for a Section 404 permit is made the Applicant must show it has:

- Taken steps to avoid impacts to wetlands or waters of the U.S. where practicable;
- Minimized unavoidable impacts on waters of the U.S. and wetlands; and
- Provided mitigation for unavoidable impacts.

Section 303(d) of the CWA (CWA, 33 USC 1250, et seq., at 1313(d)) requires states to identify "impaired" waterbodies as those which do not meet water quality standards. States are required to compile this information in a list and submit the list to the USEPA for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, states are required to prioritize waters and watersheds for future development of Total Maximum Daily Load (TMDL) requirements. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDL requirements.

National Flood Insurance Program (NFIP). The NFIP, implemented by the Congress of the United States in 1968, enables participating communities to purchase flood insurance. Flood insurance rates are set according to flood-prone status of property as indicated by Flood Insurance Rate Maps (FIRM) developed by the Federal Emergency Management Agency. FIRMs identify the estimated limits of the 100-year floodplain for mapped watercourses, among other flood hazards. As a condition of participation in the NFIP, communities must adopt regulations for floodplain development intended to reduce flood damage for new development through such measures as flood proofing, elevation on fill, or floodplain avoidance. Imperial County participates in the NFIP. FIRM #06025C1976C, Panel 1976 of 2300 for the unincorporated areas of Imperial County, effective September 26, 2008, covers the project area (FEMA, 2008).

U.S. Safe Drinking Water Act (SDWA), Section 1424(e). Section 1424(e) of the SDWA established the U.S. Environmental Protection Agency's (EPA) SSA Program. A SSA is an aquifer which supplies more than 50 percent of a community's drinking water. The boundaries of designated SSAs include the entire surface recharge area for the aquifer, and can extend beyond the underlying aquifer. Since 1977, the SSA Program has led to the designation of 64 SSAs across the United States. Under the SSA Program, the EPA conducts environmental review of any project which is located within the surface recharge area of a designated SSA and which is financially assisted by federal grants or federal loan guarantees. These projects are evaluated to determine if they have the potential to contaminate a designated SSA; if the EPA determines that such potential exists, the project should be modified to reduce or eliminate the risk. This does not mean that the SSA Program can delay or stop development of projects or impact any direct federal environmental regulatory or remedial programs such as permit decisions. (EPA, 2000)

3.20.2.2 State

Senate Bill (SB) 610, Water Supply Assessment. SB 610 was passed on January 1, 2002, amending California law to require detailed analysis of water supply availability for certain types of large development projects. The primary purpose of SB 610 is to improve the linkage between water and land use planning by ensuring greater communication between water providers and local planning agencies, and ensuring that land use decisions for certain large development projects are fully informed as to whether sufficient water supplies are available to meet project demands. SB 610 requires the preparation of a Water Supply Assessment (WSA) for a project that is subject to CEQA and meets certain requirements, as described below with regards to the proposed OWEF.

1. Is the proposed project subject to CEQA?

   Yes. As presented in this EIR, the Proposed Action requires issuance of permits by a public agency and is, therefore, subject to CEQA.

2. Is the proposed project a "Project" under SB 610?

   A proposed project would meet the definition of "Project" per Water Code Section 10912 if it is:

   - A proposed residential development of more than 500 dwelling units;
   - A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
   - A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
   - A proposed hotel or motel, or both, having more than 500 rooms;
   - A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
   - A mixed-use project that includes one or more of the projects specified in this subdivision; or
   - A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project (DWR, 2003a).

   Based on the definition of "project" as presented above, the proposed OWEF does not meet the intent of the definition. While the Proposed Action would be an industrial facility, it would not be an "industrial plant" with more than 1,000 persons or an "industrial park" planned to house more than 1,000 persons. Imperial County, as the CEQA Lead Agency for the Proposed Action, has determined that the Proposed Action does not meet the definition of "Project" per SB 610. This decision is not an authoritative interpretation of the types of projects that should be required per SB 610; other Lead Agencies may choose to make different decisions on similar projects, with regards to the applicability of SB 610. Regardless, the project Applicant has prepared an analysis of water supply for the proposed OWEF; this analysis, which is included as Appendix P to the Final EIS/EIR, was prepared in an effort to thoroughly assess the viability of the proposed Pine Valley water source to meet project water requirements.

3. Is there a public water system that will service the proposed project?

   Water supply source(s) for the proposed OWEF are described above, in the introduction to Section 3.20.10 and in Section 3.20.1.2. As discussed above, water supply for construction and operation of the Proposed Action would be purchased from one of the following sources: a private groundwater well in Pine Valley, San Diego County; the City of Brawley (treated municipal wastewater); Vulcan Materials (Dixieland Mine groundwater); and/or the IID West Side Canal. United States Code Title 42 Section 300f(4) describes that the term "public water system" refers to a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty five individuals (42 U.S.C. Sec. 300f(4)). None of these potential sources is a public water system.

   - The Pine Valley water source is an existing private groundwater supply well.
   - The City of Brawley maintains a public water system, but water that would be purchased from the city for the proposed OWEF would be treated municipal wastewater (not for human

consumption) and would not be delivered to the project site using public water system infrastructure.

- The Vulcan Materials water source is an existing private groundwater supply well.
- The IID describes that its facilities constitute neither a system for the provision of "piped water" nor a system for the provision of water "for human consumption", and that the IID is not a public water system (IID, 1993; IID, 2008). Even though IID is not a public water system, as the regional wholesale water supplier it requests to be involved in a consultation role during the preparation of any SB 610-required WSA (IID, 2008).

For the purposes of SB 610, the requirement to prepare a WSA would be the responsibility of either the treated water supplier or Imperial County. As described above, the project Applicant has prepared an assessment of water supplies for the proposed OWEF in order to fully assess the viability of the proposed Pine Valley water source to meet project requirements.

4. Is there a current UWMP that accounts for the project demand?

   There is no Urban Water Management Plan (UWMP) for the unincorporated portion of Imperial County where the Proposed Action is located. There is also no UWMP for the Pine Valley area of San Diego County, the Vulcan Materials source at Dixieland Mine, or the IID West-Side Canal source. The City of Brawley has a current UWMP in place, as discussed above in Section 3.20.1.

5. Is groundwater a component of the supplies for the project?

   Yes, water supply requirements for the Proposed Action or an alternative would be met using water pumped from a private groundwater well near Pine Valley in eastern San Diego County and trucked to the Proposed Action site in eastern Imperial County. During the construction period, approximately 50 acre-feet of water would be required for concrete manufacturing, dust suppression, and road maintenance. In addition, the Operations and Maintenance (O&M) building would require approximately 126 gallons per day, or 0.14 afy for human consumption during operations. The expected operational lifetime of the Proposed Action is approximately 20 to 40 years, depending on possible improvements to wind turbine designs. Therefore, total demand for the O&M building would be between approximately 20.14 and 40.28 acre-feet over the operational lifetime of the Proposed Action. Groundwater may also be a source for the proposed OWEF if the Vulcan Materials Dixieland Mine supply well is used for the project; as described above, use of the Dixieland Mine well would occur in accordance with a revised CUP issued by Imperial County.

As described above, the proposed OWEF is not considered a "project" as defined under SB 610, and a WSA is not required. The project Applicant has nevertheless prepared an assessment of water supplies for the project, which is incorporated by reference throughout this EIS/EIR and included as Appendix P. The assessment prepared by the Applicant is specific to the Pine Valley groundwater source; as described in Section 4.19.3.1, for the other potential water sources (the City of Brawley source, the Dixieland Mine source, and the IID source), existing studies and/or plans have demonstrated the availability of water supply to meet water requirements of the proposed OWEF. Potential impacts to water supply are addressed under the "Groundwater Supply and Recharge" sub-headings presented under each alternative in Section 4.19 of this EIS/EIR.

Senate Bill 267. Senate Bill 267 (SB 267) was signed into law by California's Governor Brown on October 8, 2011, amending California's Water Law to revise the definition of "project" specified in SB 610, as discussed above. Under SB 267, wind and photovoltaic projects which consume less than 75 afy of water are not considered to be a "project" under SB 610; subsequently, a WSA would not be required for this type of project. SB 267 does not state that renewable energy projects which use more than 75 afy are subject to SB 610 and must prepare a WSA; rather, it clarifies that those renewable projects which use less than 75 afy are not subject to such requirements. As noted above, the proposed OWEF would require 50 acre-feet of water for construction, which is less than the 75 afy specified by SB 267. Therefore, the proposed OWEF is not considered a "project" as defined under SB 267, and a WSA is not required. Also as noted above, the project Applicant has prepared an assessment of water supplies for the project, which is incorporated by reference throughout the EIS/EIR and included as Appendix P.

Porter-Cologne Water Quality Control Act. The State Water Resources Control Board (SWRCB) regulates water quality through the Porter-Cologne Water Quality Act of 1969, which contains a complete framework for the regulation of waste discharges to both surface waters and groundwater of the State. On the regional level, the Proposed Action falls under the jurisdiction of the Colorado River Basin RWQCB, which is responsible for the implementation of State and federal water quality protection statutes, regulations and guidelines. The Colorado River Basin Region has developed a Water Quality Control Plan (Basin Plan) to show how the quality of the surface and groundwaters should be managed to provide the highest water quality reasonably possible. The Basin Plan lists the various beneficial uses of water within the region, describes the water quality which must be maintained to allow those uses, describes the programs, projects, and other actions which are necessary to achieve the standards established in this plan, and summarizes plans and policies to protect water quality. In addition, as described above in Section 3.20.1.1 (Groundwater), if the OWEF includes use of groundwater from the Pine Valley area of San Diego County, coordination with the San Diego Basin RWQCB would be required to ensure compliance with the Basin Plan for the San Diego Basin. The Proposed Action would be expected to not disrupt current or designated beneficial uses of surface waters.

California Fish and Game Code. Section 1602 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the CDFG in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State, and requires any person, State, or local governmental agency, or public utility to notify the CDFG before beginning any activity that will:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

Activities that result in the diversion or obstruction of the natural flow of a stream, or which substantially change its bed, channel, or bank, or which use any materials (including vegetation) from the streamed, may require that the Applicant enter into a Streambed Alteration Agreement (SAA) with the CDFG. The Proposed Action is anticipated to result in temporary and permanent impacts to CDFG-jurisdictional streambeds and to a number of CDFG vegetation types, as described in the impact analysis provided in

Section 4.17 (Vegetation Resources) of this EIS/EIR (see Figure 4.17-4 and Table 4.17-3). The drainage crossings that would result from the Project were mapped through coordination and site reconnaissance undertaken with the ACOE, Colorado River Basin RWQCB, and the CDFG. As a result of this interagency coordination, 232 drainage crossings are being evaluated pursuant to Section 1600 of the State Fish and Game Code and pursuant to Section 401 of the Clean Water Act.

As described in the impact analyses provided in this EIS/EIR, the Proposed Action would result in temporary and permanent impacts to a total of 23.20 acres of CDFG-jurisdictional areas, primarily associated with access road and underground collection system construction in the northern and northeastern portions of Site 1. Due to these anticipated impacts to CDFG jurisdictional areas, the Applicant is expected to obtain a SAA from the CDFG in accordance with Section 1602 of the California Fish and Game code. The CDFG determines whether a SAA is necessary for a given water course after submission of a notification package by the Applicant. The Applicant submitted an application to CDFG in May of 2011.

California Water Code §13260. California Water Code §13260 requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State, other than into a community sewer system, must submit a report of waste discharge to the applicable RWQCB. Any actions related to the Proposed Action that would be applicable to California Water Code §13260 would be reported to the Colorado River Basin RWQCB.

California Water Code §13751. California Water Code §13751 requires a Report of Well Completion to be filed with the Department of Water Resources within 60 days of well completion. New wells must comply with California Department of Water Resources Well Standards as described in Water Resources Bulletins 74-81 and 74-90.

3.20.2.3 Local

Imperial County

Imperial County's General Plan includes a Water Element, which identifies and analyzes the sources and availability of water within the County and establishes policies and programs to maintain its availability, conserve its use, and preserve its quality (Imperial County, 1993). The following policies are described in the Water Element as statements of purpose and/or direction to help guide decision makers on issues concerning water resources in Imperial County, including the Proposed Action area.

- **Policy 1: Adequate Domestic Water Supply.** The efficient regulation of land uses that economizes on water consumption, enhances equivalent dwelling unit demand for domestic water resources, and that makes available affordable resources for continued urban growth and development.
- **Policy 2: Protection of Surface Waters.** Preservation of riparian and ruderal habitats as important biological filters, and as breeding and foraging for native and migratory birds and animals.
- **Policy 3: Adequate Agricultural Irrigation Water Supply.** The efficient and cost-effective utilization of local and imported water resources through the development and implementation of appropriate and separate agricultural and urban use areas.
- **Policy 4: Protection of Water Resources from Hazardous Materials.** Adoption and implementation of ordinances, policies, and guidelines which assure the safety of County ground and surface waters from toxic or hazardous materials and/or wastes.

- **Policy 5: Coordinated Water Management.** Encourage and provide inter-agency and inter-jurisdictional coordination and cooperation for the management and wise use of water resources for contact and noncontact recreation, groundwater recharge, hydroelectric energy production, and wildlife habitat as well as for domestic and irrigation use.

San Diego County

As discussed in Section 3.20.1, the County of San Diego has determined that groundwater pumped from the private Pine Valley well identified as a source for the project can be considered legal nonconforming and therefore subject to Nonconformity Regulations of the San Diego County Zoning Ordinance §6852, and that Existing Groundwater Extraction Operations as described in San Diego County Zoning Ordinance §6864 may occur. These sections of the Zoning Ordinance are presented below.

- **Zoning Ordinance §6852: Right to Continue a Nonconformity.** A nonconformity which is in existence prior to the effective date of the Zoning Ordinance or of any subsequent rezoning or other amendment thereto which creates such use or structure nonconformity, may be continued and maintained, except as otherwise specified in these Nonconformity Regulations. No expansion, extension, substitution or other change in activities and no alteration or other change in facilities is permitted except as expressly required by law or as expressly provided herein. (Renumbered and amended by Ord. No. 5508 (N.S.) adopted 5-16-79. Formerly 6952) (Amended by Ord. No. 10095 (N.S.) adopted 12-8-10)
- **Zoning Ordinance §6864: Existing Groundwater Extraction Operations.** Any existing activity meeting the definition of a "Groundwater Extraction Operation," as determined by the Director, shall be considered a nonconforming use and may continue said operations after May 8, 1992. However, the Nonconformity Regulations commencing at Section 6850 shall apply to such operation. (Added by Ord. No. 8050 (N.S.) adopted 4-8-92)
- **Zoning Ordinance §6870: Modification of Nonconforming Use or Buildings when Nonconformity is Due to Lack of Major Use Permit.** Subparagraph (e), Groundwater Extraction Operation, states that a nonconforming Groundwater Extraction Operation, established as nonconforming pursuant to Section 6864, may be modified, in addition to other modifications that would be allowed by this section, to allow an increase in the amount of water exported or to change the location or method of off-site distribution, provided the findings required by subparagraph (b) can be made, where subparagraph (b) states that modifications may be authorized only after finding that: (1) The use was legally established prior to the requirement for a Major Use Permit; and (2) The requested modification does not constitute a substantial change to the use; and (3) The requested modification will not adversely affect adjacent property or property owners. (4) There is no increase in the size of the parcel. (5) The buildings are located in substantially the same location as shown on the plot plan.

Other relevant Zoning Ordinances include the following:

- **Zoning Ordinance §1810, §6552, and §6654.** The sale of groundwater from a private well owner is a "Groundwater Extraction Operation," requiring a Major Use Permit from the County of San Diego.

In addition to the Zoning Ordinance, San Diego County's General Plan includes and Open Space and Conservation Element, which identifies goals and polies to help guide decision makers on issues concerning water resources in San Diego County, including the Pine Valley area, a potential groundwater source.

- **COS-4.4 Groundwater Contamination.** Requires land uses with a high potential to contaminate groundwater to take appropriate measures to protect water supply sources. Potential sources of groundwater contamination include, but are not limited to, landfills, fertilizer, pesticide, manure storage and sales, petroleum product storage tanks, manufacturing plants, and on-site wastewater treatment systems.

[illegible] agricultural and industrial [illegible] for contact and noncontact recreation, groundwater recharge, hydroelectric energy generation, and wildlife habitat as well as for domestic and irrigation use.

San Diego County

As discussed in Section 3.10.1, the County of San Diego has determined that groundwater pumped from the private Tule Valley well identified as a source for the project can be considered legal nonconforming and therefore subject to Nonconforming Regulations of the San Diego County Zoning Ordinance §6852, and the Existing Groundwater Extraction Operations as described in San Diego County Zoning Ordinance §6856 and [illegible]. These sections of the Zoning Ordinance are [illegible] below:

- Zoning Ordinance §6852, Right to Continue a Nonconformity. A nonconformity which is in existence prior to the effective date of the Zoning Ordinance or of any [illegible] or other amendment thereto which creates such use or structure nonconformity, may be continued and maintained, except as otherwise specified in these Nonconformity Regulations. No expansion, extension, substitution or other change in activities and no alteration of [illegible] is permitted except as expressly required by law or as expressly provided herein. (Incorporated and amended by Ord. No. 5508 (N.S.) adopted 5-16-79; Formerly 6852) (Amended by Ord. No. 10099 (N.S.) adopted 12-8-10)
- Zoning Ordinance §6856 Existing Groundwater Extraction Operations. Any existing activity meeting the definition of a "Groundwater Extraction Operation," as determined by the Director, shall be considered a nonconforming use and may continue such operations after May 8, 1991. However, the Nonconformity Regulations commencing at Section 6850 shall apply to such operations. (Added by Ord. No. 8050 (N.S.) adopted 4-8-92)
- Zoning Ordinance §6876i Modification of Nonconforming Use or Buildings When Nonconformity is Due to Lack of Major Use Permit, Subparagraph (e): Groundwater Extraction Operations states that a nonconforming Groundwater Extraction Operation, established as nonconforming pursuant to Section 6856, may be modified, in addition to other modifications that would be allowed by this section, to allow an increase in the amount of water extracted or to change the location or method of effluent distribution, provided the findings required by subparagraph [illegible] can be made; where subparagraph (b) states that modifications may be authorized [illegible] (1) The use was legally established prior to the requirement for a Major Use Permit; and (2) The proposed modification does not constitute a substantial change in the use; and (3) The [illegible] will not adversely affect adjacent property or planning [illegible] (4) There is no [illegible] (5) The buildings are located in substantially the same location as [illegible]

Other relevant Zoning Ordinances include the following:

- Zoning Ordinance §6024, §6025, and §6550. The use of groundwater [illegible] is a "Groundwater Extraction Operation," requiring a Major Use Permit [illegible] County of San Diego.

In addition to the Zoning Ordinance, the County's [illegible] Open Space and Conservation Element, which [illegible] concerning water resources in San Diego County, including the [illegible] groundwater sources.

- COS-5.4 Groundwater Contamination. Require land uses with a high potential to contaminate groundwater to take appropriate measures to protect water supply sources. Potential sources of groundwater contamination include, but are not limited to, landfills, dumpsites, pesticide, nitrate

3.21 Wild Horses and Burros

The BLM administers wild horses and burros as guided by the Wild Free-Roaming Horse and Burro Act of 1971. This includes the management of Herd Areas (HA) and Herd Management Areas (HMAs). HAs are those geographic areas where wild horses and/or burros were found at the passage of the Wild Free-Roaming Horse and Burro Act in 1971. HMAs are those areas within HAs where the decision has been made, through Land Use Plans, to manage for populations of wild horses and/or burros. California contains 33 HAs and 22 HMAs (BLM, 2010a).

According to the 2010 Geocommunicator on the BLM website and the 2006 BLM map for HAs and HMAs, California (south), there are no HAs or HMAs located within or adjacent to the proposed OWEF site or ROW application area (BLM, 2006 and 2010b). The Chocolate-Mule Mountains HMA and the Picacho HA are located approximately 59 miles east and 44 miles northeast of the proposed OWEF site, respectively, in Imperial County near the California-Arizona border (BLM, 2006 and 2010b). As such, the proposed OWEF site would not contain or traverse any established HMAs or HAs.

3.22 Wildland Fire Ecology

3.22.1 Environmental Setting

The behavior and characteristics of wildfires are dependent on a number of biophysical and anthropogenic (human-caused) factors. The biophysical variables are fuels (including composition, cover, and moisture content), weather conditions (particularly wind velocity and humidity), topography (slope and aspect), and ignition sources (e.g., lightning). The anthropogenic variables are ignitions (e.g., arson, smoking, equipment failure or misuse, and power lines) and management (wildfire prevention and suppression efforts).

Vegetation with low moisture content is more susceptible to ignitions and burns more readily than vegetation with higher moisture content. Grasses and low herbaceous vegetation fires account for high levels of firefighter injuries. However, when attacked safely this fuel type offers less resistance to fire control efforts. Grasses tend to ignite more easily and burn faster, but tend to burn for a shorter duration than woody vegetation such as shrubs and trees. Continuity of fuels helps sustain wildland fires. Dense vegetation tends to carry a fire farther than patchy vegetation. The presence of invasive annual grasses, however, can provide fuel connectivity in patchy desert shrublands that would otherwise provide inconsistent fuel to sustain a wildland fire. Similarly, strong winds provide oxygen to wildfires and can also blow glowing embers off burning vegetation to areas far ahead of the front of a fire, allowing fires to jump fuelbreaks in some cases. Conditions of low relative humidity will dry out fuels, increasing the likelihood of ignition. Finally, steep slopes and slopes with exposure to solar preheating and wind will carry fires rapidly uphill, and fires that are extinguished in mountainous areas are often contained along ridgelines.

Vegetation at the OWEF project site consists of a mix of desert scrub communities, desert wash woodland with a smoke tree density of approximately 100 trees per acre, and badlands, the latter of which is either without significant vegetation or very sparsely vegetated with herbaceous plants and an occasional shrub. Topography at the project site is nearly level to gently sloping, except at the southwestern-most corner of the project site, where the project site includes steeper slopes at the foothills of the Jacumba Mountains. There is no record of any fire greater than 300 acres having occurred at the project site or within 1 mile of the project site (CAL FIRE, 2008) , indicating available older age fuels. Several fires have been recorded within approximately 5 miles south and west of the project site on the slopes of the Jacumba Mountains.

Strong winds provide oxygen to wildfires and can also blow glowing embers off burning vegetation to areas far ahead of the front of a fire. The OWEF project site is within an area of sustained strong winds according to the National Renewable Energy Laboratory, and this factor contributes to the ranking of the project site as a moderate and high fire hazard severity zone.

Fire Hazard Severity Zones (FHSZs) are areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors that have been mapped by the California Department of Forestry and Fire Protection (CAL FIRE) under the direction of Public Resources Code (PRC) 4201-4204 and Government Code 51175-89. FHSZs are ranked from moderate to very high and are categorized for fire protection as within a federal responsibility area (FRA) under the jurisdiction of a federal agency, within a State responsibility area (SRA) under the jurisdiction of CAL FIRE, or within a local responsibility area (LRA) under the jurisdiction of a local agency. The OWEF site is located in FRA under the jurisdiction of BLM, and the site is within a moderate FHSZ except for a small portion of the site at the project's southwestern boundary, which is within a high FHSZ (CAL FIRE, 2007). Although the site boundary contains areas that are within a high FHSZ, neither wind turbines nor any other facility or structure associated with the project would be located within a high FHSZ. All construction and operational activities would occur within a moderate FHSZ. The area adjacent to the project's southern boundary is within a high FHSZ, and the areas approximately 3 miles west and 3 miles south of the project boundary is within very high FHSZs. The first responding engine from BLM would be the Pinyon Fire Station (Station #30 located at 70080 California 74, Mountain Center, CA) of the Riverside County Fire Department located approximately 59 miles north of the project site. However, the first responder to a structural fire would be the Imperial County Fire Department (2514 La Brucherie Road, Imperial, CA). Seeley, CA Fire Station and Ocotillo, CA Fire Station. Other potential closest responders include the San Diego County Fire Authority, Boulevard, CA Fire Station, San Diego Rural Fire Protection District, Jacumba, CA Fire Station and/or CAL FIRE from White Star and Campo Fire Stations.

In summary, fire risk at the project site is moderate, and the potential for a major fire to occur in the area surrounding the project site is moderate.

The study area for wildfires is defined as the area within one mile of the project boundary to the north and east, and within 3 miles of the project boundary to the west and south. Based on the type of vegetation and topography in the area, this study area represents a reasonable maximum extent of a wildfire ignited at the project site. Sensitive receptors nearby the site include residences in the community of Ocotillo, which is located between the northern and southern portions of the proposed OWEF site.

3.22.2 Applicable Regulations, Plans, and Standards

3.22.2.1 Federal

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines. These clearances vary depending on voltage. In most cases, however, the minimum clearances required in state regulations are greater than the federal requirement. In California for example, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation (NERC) Standards as the electric safety standard for the State. Since the state regulations meet or exceed the FERC standards, the FERC requirements are not discussed further in this section, as compliance with the state requirements will ensure that the federal requirements are met.

Federal Wildland Fire Management Policy

The Federal Wildland Fire Management Policy was developed in 1995 and updated in 2001 by the National Wildfire Coordinating Group, a federal multi-agency group that establishes consistent and coordinated fire management policy across multiple federal jurisdictions. An important component of the Federal Wildland Fire Management Policy is the acknowledgement of the essential role of fire in maintaining natural ecosystems. The Federal Wildland Fire Management Policy and its implementation are founding on the following guiding principles:

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
- Fire management plans and activities are based upon the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, State, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

International Fire Code

Created by the International Code Council, the International Fire Code addresses a wide array of conditions hazardous to life and property including fire, explosions, and hazardous materials handling or usage. The International Fire Code places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated in order to protect life and property (often times these measures include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted.

National Electric Safety Code 1977, 2006

The National Electric Safety Code covers basic provisions related to electric supply stations, overhead electric supply and communication lines, and underground electric supply and communication lines. The code also contains work rules for construction, maintenance, and operational activities associated with electric supply and communication lines and equipment. The code, which must be adopted by states on an individual basis, is not applicable in the State of California. As stated previously, the State of California has adopted its own standard (General Order 95) rather than a general national standard. The National Electric Safety Code is not discussed further.

North American Electric Reliability Corporation Standards

The NERC is a nonprofit corporation comprising 10 regional reliability councils. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC, 2011). In order to improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the Eastern Seaboard, NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kV and above to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region. The plan, which became effective on April 7, 2006, establishes requirements of the formal transmission vegetation management program, which include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway (NERC, 2006). The clearances identified must be no less than those set forth in the Institute of Electrical and Electronics Engineers Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) (NERC, 2006).

Institute of Electrical and Electronics Engineers Standard 516-2003

The Institute of Electrical and Electronics Engineers is a leading authority in setting standards for the electric power industry. Standard 516-2003, *Guide for Maintenance Methods on Energized Power Lines*, establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

3.22.2.2 State

California Fire Code

The California Fire Code is contained within Chapter 9 of Title 24 of the California Code of Regulations (CCR). Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

California Health and Safety Code

State fire regulations are established in Section 13000 of the California Health and Safety Code. The section establishes building standards, fire protection device equipment standards, high-rise building and childcare facility standards, interagency support protocols, and emergency procedures. Also, Section 13027 states that the state fire marshal shall notify industrial establishments and property owners having equipment for fire protective purposes of the changes necessary to bring their equipment into conformity with, and shall render them such assistance as may be available in converting their equipment to, standard requirements.

California Fire Plan

The California Fire Plan is the statewide plan for reducing the risk of wildfire. The basic principles of the Fire Plan are as follows:

- Involve the community in the fire management planning process
- Assess public and private resources that could be damaged by wildfires
- Develop pre-fire management solutions and implement cooperative programs to reduce community's potential wildfire losses.

One of the more important objectives of the plan regards pre-fire management solutions. Included within the realm of pre-management solutions are fuels breaks, the establishment of Wildfire Protection Zones, and prescribed fires to reduce the availability of fire fuels. In addition, the Fire Plan recommends that clearance laws, zoning, and related fire safety requirements implemented by state and local authorities address fire-resistant construction standards, hazard reduction near structures, and infrastructure

(California Board of Forestry, 2010). The Fire Plan does not contain any specific requirements or regulations. It acts as more of an assessment of current fire management practices and standards and makes recommendations on how best to improve the practices and standards in place.

CPUC General Order 95: Rules for Overhead Electric Line Construction

GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. It was adopted in 1941 and updated most recently in 2006. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, and standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements.

Rule 31.2, Inspection of Lines, requires that lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition as not to create a hazard.

Public Resources Code 4291

Public Resources Code 4291 provides that a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, shall at all times maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line.

3.22.2.3 Imperial County

General Plan, Seismic and Public Safety Element

Goal 1, Objective 1.8: Reduce fire hazards by the design of new developments.

Goal 2, Objective 2.8: Prevent and reduce death, injuries, property damage, and economic and social dislocation resulting from natural hazards including flooding, land subsidence, earthquakes, other geologic phenomena, levee or dam failure, urban and wildland fires and building collapse by appropriate planning and emergency measures.

Uniform Building Code (UBC) and Uniform Fire Code (UFC)

The County implements the UBC and the UFC. These uniform codes are intended to serve as minimum standards for fire-resistant building construction and provision of emergency access.

Fire Prevention and Explosives Ordinance, Section 53101-53300

The Fire Prevention and Explosives Ordinance contain provisions for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion. Such measures in this Ordinance include the following:

- Storage of flammable materials
- Storage of Radioactive materials
- Permit required for sale and use of fireworks
- Abatement of weeds and other vegetation

These measures reduce the risk of fire as a result of the storage of flammable materials and the introduction of exotic weeds to unincorporated areas of the County.

BLM Fire Management: California Desert District; Palm Springs-South Coast-El Centro Zone

In brief, the California Desert District (CDD) Fire Management program operates a decentralized fire program based on the "Fire Management Zone" concept. The Palm Springs-South Coast Field Office and El Centro Field Offices and the Santa Rosa and San Jacinto Mountains National Monument are the political sub-divisions served by this Zone. The Palm Springs and El Centro areas are provided fire protection by BLM Fire on Federal Responsibility Areas, which include all federal lands. The South Coast Area is provided fire suppression services by CAL FIRE in San Diego, Riverside, and San Bernardino Counties south of the San Bernardino National Forest. The Los Angeles County Fire Department serves unincoporated Los Angeles County. These South Coast Area fire agencies provide their services to BLM under a Direct Protection Agreement. The South Coast Area is divided along a north-south axis at the southern Riverside county line with San Diego and Imperial Counties. One Fire Mitigation Education Specialists is based in each of these respective geographical areas and provide the BLM Fire Agency Representative roles in those areas. The Division Chief, Fire Management Officer and Fuels Management Officer are located in Palm Springs, CA. Suppression resources include two of the CCD's ten BLM/Park Service Engines. Additional resources available to BLM are local, State and federal engines, crews, bulldozers, and firefighting aircraft that are appropriate to the task.

A. **Fire Management: Wildfire Prevention** (43 C.F.R. 9212.0 et seq.)

These regulations outline procedures to be used to prevent wildfires on BLM lands. BLM policy requires the agency to take all necessary actions to protect human life, the public lands, and the resources and improvements on the public lands through the prevention of wildfires. Whenever possible, BLM actions should complement and support local wildfire prevention actions. *Authority: 43 U.S.C. 1701 et seq.*

The BLM Fire in cooperation with local, state and federal laws require the following

Roles and Responsibilities:

BLM Fire is responsible for Fire Suppression, Fire Mitigation, Fire Prevention, Fire Education and receptive fuels of wildland fires on BLM Lands. BLM Fire will operate in collaboration with local fire agencies in design, prevention and suppression operations.

Delegation of Authority:

The BLM shall designate the appropriate Fire Department, by jurisdiction, on a project by project basis, to work with BLM Fire in assistance with wildland fires, structural, vehicle, chemical and energized electrical firefighting. Emergency Medical Services, Technical Rescue, and Hazardous Materials.

BLM Fire will support this delegation of Authority in Unified Command or through Fire Management Agency Representatives to facilitate the call and management of appropriate BLM specialists to assist in emergency incidents on BLM Lands. (Example: Hazardous Materials Incident).

Lack of Fire Services:

If the local jurisdiction is unable to accept this project, BLM Fire and the local agency will determine and specify the requirements of an Industrial Fire Brigade as stipulated for 24 hour service.

Water Supply: Sufficient fire flow to support unstaffed or automatic fire suppression systems. Firefighting systems through automatic firefighting systems. This flow must be achieved through service through a municipal or other water district. If such entity is not available 10,000 gallon water tanks shall be installed, maintained and filled.

Firefighting Water Tanks:

The amount of tanks shall be determined by required fire flow requirements of the local fire agency in collaboration with BLM Fire. The location of the Tanks shall be determined by BLM Fire and the local agency to best serve the project and wildland firefighting requirements. The plumbing shall be such that the Hydrant or wharf head hydrant is of Bronze metals to reduce corrosion. It shall be protected from vandalism by a concrete box that has a steel locking top and access ports for the fire supply hose The tanks shall be stenciled and maintained to say "Firefighting Water 10,000 gallons" The plumbing connection must be such that the tank can be opened or closed, the plumbing must be permanent, of metal material, and no less than 4 inches. The firefighting connection must be of metal construction and have a 4" National Hose Thread. Attached to this must be a separate coupling, that shall be removable, and of metal construction that goes from 4 inch National Hose thread to 2 ½ inch National Hose Thread. A protective cap must be in place to protect the hose threads.

Nacelle Fire Protection: Shall be installed and in service prior to start up.

Fire Roads/ Fire Truck Trails: Shall be maintained to permit access to two wheel drive fire equipment. Said roads, routes or trails shall be named or designated with road signs maintained by the project to facilitate emergency response.

Fences: As necessary, shall not limit access to fire roads, fire hydrants, or fire protection systems, such limitations shall be mitigated with gates to allow immediate access. (For example a fence blocking access to a water tank or hydrant).

Gates: Shall be no less width than 12 feet, to facilitate the use of firefighting bulldozers.

House Keeping: No combustible materials, patio furniture, wood picnic tables, sun shades, patio roof shall be stored placed or constructed around buildings. Such items must be fire resistant.

Campfires, Barbeques, stoves: Must be placed in cleared areas.

Locks: Provide a Knox Box or similar to allow fire and law enforcement, including US Border Patrol access.

Fire Plan/Notification List: Shall be updated as changes occur, and available on scene at the Knox Box location.

Addresses: Shall be at least 6 inches in height and of color contrast to its background.

Below surface pipelines, electrical and communications lines: Shall be signed at an interval appropriate to alert firefighting bulldozer and off road fire engine operations to advise firefighters of depth and location.

Towers Marking: Sufficient to FAA and CAL FIRE firefighting aircraft standards.

Tower Pads: Shall be of gravel to facilitate all weather parking by firefighting vehicles.

Fuels Management: a 100' defensible space zone shall be maintained annually or more often to reduce the availability of receptive fuels. Up to thirty feet from the shoulder of the roads shall be maintained to reduce grasses and herbaceous plants. Specimen or rare plants, succulents are allowed to soften the treatment, concentrating on dead and down woody vegetation.

Fire Mitigation funds: As necessary to mitigate employee costs and lead to acquisition of 2 additional Fire Prevention technicians and Patrol trucks over the service life of the projects to reduce wildfire risks and educate communities to FireSafe/FireWise concepts.

3.23 Wildlife Resources

This section describes the environmental setting and wildlife resources present or with potential to occur within the approximately 12,435-acre proposed OWEF project site (proposed OWEF site) that includes Sites 1 and 2.

3.23.1 Environmental Setting

The proposed OWEF site is located in the Yuha Desert, which is in the Colorado Desert region of the larger Sonoran Desert. The seven million-acre Colorado Desert region extends from the border of the higher-elevation Mojave Desert in the north to the Mexican border in the south, and from the Laguna Mountains of the Peninsular Ranges in the west to the Colorado River in the east. The Yuha portion extends from the Jacumba Mountains in the west to the historic West Side Main Canal near El Centro, and from Plaster City in the north to south of Mount Signal in Mexico.

The Colorado Desert is a desert of much lower elevation than the Mojave Desert to the north, and much of the land lies below 1,000 feet AMSL. Mountain peaks rarely exceed 3,000 feet AMSL. Common habitat includes sandy desert, scrub, palm oasis, and desert wash. Summers are hot and dry, and winters are cool and moist. Anza-Borrego Desert State Park (ABDSP), located mostly in eastern San Diego County, but jutting into Imperial County, is the bioregion's largest recreation area, covering 600,000 acres. It offers more than 225 bird species and dozens of species of mammals, amphibians, and reptiles. Peninsular bighorn sheep (*Ovis canadensis nelsoni*); can be seen there, as well as species of thrashers and owls. Other species in the Colorado Desert are antelope squirrel (*Ammospermophilus* sp.), white-winged dove (*Zenaida asiatica*), southern mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), and raccoon (*Procyon lotor*). Rare animals include desert pupfish (*Cyprinodon macularius*), flat-tailed horned lizard (FTHL; *Phrynosoma mcallii*), prairie falcon (*Falco mexicanus*), Andrew's dune scarab beetle (*Pseudocotalpa andrewsi*), Colorado desert fringe-toed lizard (*Uma notata*), Le Conte's thrasher (*Toxostoma lecontei*), and black-tailed gnatcatcher (*Polioptila melanura*; [CERES] 2011).

Most of the OWEF proposed OWEF site is a designated (BLM) Limited Use Area in which all motorized vehicles are restricted to the use of marked, designated routes only. BLM dirt roads exist throughout the proposed OWEF site, and a dirt road occurs along the existing 500-kV transmission line which traverses the middle of the proposed OWEF site running southwest to northeast. Illegal off-highway vehicle (OHV) trails criss-cross portions of the proposed OWEF site, and some areas are regularly used for camping, firearm activities, and legal OHV use. This area is also regularly patrolled by the U.S. Border Patrol. Despite the above-mentioned usage, the majority of the proposed OWEF site is relatively undisturbed.

Surrounding land uses include ABDSP to the west and BLM land to the north, east, and west. The Coyote Mountains Wilderness Area is located to the north (and adjacent to the proposed OWEF site), the Jacumba Wilderness Area is located to the south (and adjacent to the proposed OWEF site), and the Yuha Basin Area of Critical Environmental Concern (ACEC) occurs to the southeast. The town of Ocotillo and several scattered residences outside of the town are located between Sites 1 and 2.

Elevations in the proposed OWEF site range from approximately 1,490 feet AMSL in the southwest portion of the proposed OWEF site to 300 feet AMSL in the northeast portion of the proposed OWEF site. Elevation generally decreases from the west to the east, with the Coyote Mountains to the north (located within the Coyote Mountains Wilderness Area), and the Jacumba Mountains to the west and south (located within the Jacumba Mountains Wilderness Area). To the west, the flanks of the Jacumba Mountains create rugged, rocky topographical features, low hills, and eroded badlands.

The majority of the proposed OWEF site is comprised of desert scrub communities such as brittle bush scrub, creosote bush scrub, teddy bear cholla scrub, white bursage scrub, and Wolf's cholla scrub. Smoke tree woodland is also present on the site; it typically occurs in dry desert washes. On-site unvegetated areas include sand dunes, un-vegetated streambeds, and badlands.

Several named, dry desert washes cut through the proposed OWEF site and run generally from west to east: Palm Canyon Wash cuts through the center of Site 1; Myer Creek Wash cuts through the southern portion of Site 1; a portion of Coyote Wash cuts through the northwest portion of Site 2; and several additional unnamed washes cut through the proposed OWEF site.

3.23.1.1 Special Status Animal Species

Special status animal species are those that are:

- Threatened, endangered, proposed, or candidates for listing under the federal ESA (ESA) or state equivalents;
- Considered to be of other special status by the USFWS and/or CDFG (2011).
- BLM-designated sensitive species (CDFG, 2011).

Table 3.23-1 lists special status animal species known to occur in the proposed OWEF site based on sightings by HELIX biologists (HELIX, 2011c) or whose potential to occur in the proposed OWEF site was considered based on CDFG's California Natural Diversity Data Base (CNDDB, 2010) search and BLM species lists (CDFG, 2011).

Focused surveys for the following special status animal species were conducted in the proposed OWEF site as listed below. The methods for each survey (or surveys) from 2009 through spring 2010 are described in the biological technical report (Appendix D; HELIX 2011c). The methods for each survey (or surveys) from fall 2010 through 2011 are described in the survey reports that are appendices to the biological technical report (HELIX, 2011c).

- Flat-tailed horned lizard
- Barefoot banded gecko
- Raptors (i.e., raptor migration)
- Avian species (i.e., avian point counts)
- Golden eagle (nest survey)
- Burrowing owl
- Bats
- Peninsular bighorn sheep

Additionally, DeTect, Inc. was contracted by the project proponent to conduct an Avian Radar Survey at the proposed OWEF site. The methods (and results) for this survey are summarized below (following Avian Point Counts).

Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
		Invertebrates		
Euphydryas editha quino Quino checkerspot butterfly	Federal – FE State – None BLM – None	Found in association with but not restricted to vernal pools, sage scrub, chaparral, native and non-native grassland, and open oak and juniper woodland communities. The key component seems to be open-canopied habitats with larval host plants (*Plantago erecta* and possibly *Antirrhinum coulterianum*, *Collinsia concolor*, and *Castilleja exserta*) and adult nectar resources.	None	Species' habitat does not occur in the proposed OWEF site, and proposed OWEF site is outside of (i.e., east of) the USFWS recommended survey area for the species.
		Vertebrates		
Fish				
Cyprinodon macularius Desert pupfish	Federal – FE State – SE BLM – None	Shallow waters with clear water and soft substrates.	None	Species' habitat does not occur in the proposed OWEF site.
Amphibians				
Lithobates yavapaiensis (=Yavapai, San Sebastian &San Felipe) Lowland leopard frog	Federal – None State – SSC BLM – Sensitive	A detailed understanding of the habitat requirements is lacking, but this species apparently inhabits slackwater aquatic habitats dominated by bulrushes, cattails, and riparian grasses near or under an overstory of Fremont's cottonwoods and willows (CDFG, 1994).	None	Species' habitat does not occur in the proposed OWEF site.
Scaphiopus couchii Couch's spadefoot	Federal – None State – SSC BLM – Sensitive	Requires temporary desert rainpools with water temperatures >15°C in which to breed that last at least seven days in order to metamorphose successfully. Subterranean refuge sites (with a loose-enough substrate to permit burial) must occur in the vicinity of rainpool depressions where reproduction takes place (CDFG, 1994).	None	Species' known range does not occur in the proposed OWEF site.
Reptiles				
Charina trivirgata **Rosy boa**	**Federal – None** **State – None** **BLM – Sensitive**	**Desert, arid scrub, brushland, rocky chaparral-covered foothills - particularly where moisture is available.**	**Present**	**Observed in rocky habitat in the southwest portion of the proposed OWEF site during surveys for the barefoot banded gecko.**
Coleonyx switaki Barefoot banded gecko	Federal – None State – ST BLM – None	Rocky, boulder-strewn desert foothills, where it spends most of its life deep in rock crevices and subterranean chambers.	High	Species not detected or recorded within the area surveyed in 2010 despite exhaustive searches which totaled 50 survey hours (Dugan, 2011a). Barefoot banded geckos have been previously documented within the I-8 Island during surveys for other projects; however, this area was excluded from the surveys for the proposed project given no project-related impacts would occur within the I-8 Island. Portions of the redesigned project that occur within suitable barefoot banded gecko habitat and outside of the areas surveyed in 2010 were surveyed in 2011, and the species was not found (Dugan, 2011b).
Crotalus ruber **Red-diamond**	**Federal – None** **State – SSC**	**Arid scrub, coastal chaparral, oak and pine woodlands, rocky grassland, cultivated areas. On desert slopes of mountains, it**	**Present**	**Approximately 20 individuals were observed throughout the 2010 nocturnal barefoot banded gecko surveys.**

Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
rattlesnake	BLM - None	ranges into rocky desert flats.		
Gopherus agassizii Desert tortoise	Federal – FT State – ST BLM – None	Flats and bajadas with soils ranging from sand to sandy gravel with scattered shrubs. Requires sufficient suitable plants for forage and cover and suitable substrates for burrows and nest sites.	None	Outside range of the species. ABDSP has reported past presence well north of the proposed OWEF site. Most tortoises west of the Salton Sea are probable releases (CSP, 2007).
Phrynosoma mcallii Flat-tailed horned lizard	Federal – None State – SSC BLM – Sensitive	Occurs in desert washes and desert flats with cobbly, gravelly, or sandy soils; require native ant populations, particularly harvester ants (*Pogonomyrmex sp.*).	Present	A total of 18 FTHL were found within the proposed OWEF site during the FTHL survey as well as during other surveys conducted by HELIX. All of the FTHL were found east of Shell Canyon Road in the northeastern portion of the proposed OWEF site.
Uma notata Colorado Desert fringe-toed lizard	Federal – None State – SSC BLM – Sensitive	Sparsely-vegetated arid areas with fine wind-blown sand including dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. Found in extreme southeast California in the Colorado Desert from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta and on into extreme northeastern Baja California, Mexico (California Herps.com, 2011).	Low	Fine, wind-blown sands limited in the proposed OWEF site.
Birds				
Accipiter cooperii Cooper's hawk	Federal – None State – WL BLM – None	Fall migrant and winter resident in the desert regions of southern California.	Present	Six observations were made during the migration count surveys: 2 observations in fall 2009, 1 observation in spring 2010, and 3 observations in fall 2010 and spring 2011. One additional observation was made during an avian point count (APC) survey in April 2010.
Accipiter striatus Sharp-shinned hawk	Federal – None State – WL BLM – None	This species is a fall migrant and winter resident in the desert regions of southern California. Usually observed in areas with tall trees or other vegetative cover but can be observed in a variety of habitats.	Present	Four observations of sharp-shinned hawk were made in the proposed OWEF site, including 1 observation during the fall 2009 migration survey, 3 observations during the fall 2010 migration survey, and 1 observation during the spring 2011 migration study. Species not observed during the spring 2010 migration survey.
Aquila chrysaetos Golden eagle	Federal – Bald and Golden Eagle Protection Act covered, SC, BCC State – FP, WL BLM –Sensitive	This species will nest in desert regions if cliff ledges or trees are present on very steep slopes. Foraging occurs over open scrub and grassland habitats. Species is uncommon permanent resident and migrant throughout California, except center of Central Valley (Zeiner et al., 1988).	Present	Golden eagles were observed on 5 survey dates during fall 2009 migration counts, 0 survey dates during the spring 2010 migration counts, and 10 survey dates during the fall 2010 migration counts. One (1) individual was observed in spring 2010 during burrowing owl surveys. Observations were typically a single golden eagle, but on several occasions a group of 2 or 3 eagles were observed. In spring 2011, 1 golden eagle was observed on 3 survey dates, and 4 golden eagles were observed on 2 survey dates. One (1) juvenile and 2 adult golden eagles were observed during an APC survey. WRI's spring 2010 helicopter surveys within the 5

Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
				known golden eagle territories indicated that there are 20 nest sites within 10 miles of the proposed OWEF site. Two (2) of the nest sites were considered active, having shown signs of nesting activity early in the 2010 breeding season, but none were occupied (i.e., no adults, eggs, or young were observed at nest sites during helicopter surveys).
Asio otus Long-eared owl	Federal – None State – SSC BLM – None	Oak woodlands and riparian forests in proximity to open foraging habitat. Occurs in southern California as an uncommon winter resident.	Present	One (1) individual was observed in the west central portion of the proposed OWEF site.
Athene cunicularia Burrowing owl	Federal – SC, BCC State – SSC BLM – Sensitive	Grassland and open scrub habitats and agricultural lands. Uses burrows of squirrels (*Ammospermophilus* and *Spermophilus* spp.) and debris piles for nest sites. Migratory and resident breeding owls within the proposed OWEF site.	Present	Three burrowing owls were observed during the Phase I habitat assessment (January 2010), 2 burrowing owl pairs were documented during the 2010 Phase III breeding season surveys (June/July 2010), and 20 burrowing owls were documented during the fall/winter 2010 plant surveys. Twenty-one burrowing owl locations were observed during the fall 2010 focused burrow search, and 4 burrowing owls (likely a family group) were observed at a single burrow in June 2011 during the breeding season survey.
Branta bernicla Brant	Federal – None State – SSC BLM – None	Does not breed in California. Occurs in the state primarily as a spring and fall migrant and winter visitor; passes mainly far offshore in fall and close inshore in spring when staging birds are numerous in isolated coastal estuaries. During the non-breeding season, brant require well-protected, shallow marine waters with intertidal eel-grass beds, primarily within bays and estuaries. Their extensive use of natural habitats contrasts with that of most other geese of the Northern Hemisphere, which now primarily use agricultural land throughout winter (Shuford and Gardali, 2008a).	Present	A dead individual was found underneath the existing 500-kV transmission lines, in the northern portion of the proposed OWEF site. It is assumed the individual was migrating through the area.
Buteo regalis Ferruginous hawk	Federal – BCC State – WL BLM – Sensitive	Does not breed in southern California. Occurs in southern California as an uncommon winter resident and is associated with open grasslands. The species rarely occurs in desert valleys (Unitt, 2004).	Present	Species observed on 3 dates in October 2009 during the fall 2009 migration survey. Species also observed during an APC survey in December 2009. Two individuals were observed during spring 2010 rare plants surveys. Species not observed during the spring 2010 or fall 2010 migration surveys.

Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
Buteo swainsoni Swainson's hawk	Federal – BCC State – ST BLM – None	Species migrates through Imperial County during its southward migration in the fall and during its northward migration in spring. Large groups known to roost in the town of Borrego Springs (approximately 40 miles to the northwest) during spring and fall migration, but the species is not known to breed in Imperial County (Unitt, 2004).	Present	A total of 20 individuals were observed during migration count surveys: 1 in fall 2009, 2 in spring 2010, and 17 in fall 2010. Three additional observations were made during APC surveys in spring 2010. Fifty-one individuals were observed during the spring 2011 migration survey.
Chaetura vauxi Vaux's swift	Federal – SC State – SSC BLM – None	Occurs rarely and irregularly in winter in southern California (Garrett and Dunn, 1981, as cited in Shuford and Gardali, 2008b). May roost in chimneys or other man-made structures and prefers to breed in old growth forests in western North America to central California (Shuford and Gardali, 2008b).	Present	Species observed migrating through the proposed OWEF site during the spring and fall migration periods.
Charadrius montanus Mountain plover	Federal – PT, BCC State – SSC BLM – Sensitive	Does not breed, but winters, in California. Found on extremely dry shrublands, shortgrass prairie, barren agricultural fields, and other sparsely vegetated areas. Grazed alfalfa fields and burned Bermuda grass fields were heavily utilized by mountain plover (USFWS, 2010a). The importance of the Imperial Valley to mountain plover, where the authors suggested half of the continental population of mountain plovers may winter, is linked to losses of wintering habitat in coastal and Central Valley, California (Wunder and Knopf, 2003; pp. 77-78, as cited in USFWS, 2010a).	Low	Preferred habitats very limited to absent in the proposed OWEF site.
Circus cyaneus Northern harrier	Federal – SC State – SSC BLM – None	Sloughs, wet meadows, marshlands, swamps,prairies, plains, grasslands, and shrublands. They nest on the ground, usually near water, or in tall grass, open fields, clearings, or on the water (Snyder, 1993). Resident of southern California.	Present	A total of 12 individuals were observed during migration count surveys: 8 in fall 2009, 2 in spring 2010, and 2 in fall 2010. One additional observation was made during APC surveys in fall 2009.
Cypseloides niger Black swift	Federal – SC, BCC State – SSC BLM – None	Nests around waterfalls and sea cliffs. Specific wintering grounds of the California populations are not known (Lowther and Collins, 2002, as cited in Shuford and Gardali, 2008c). The entire California population appears to be composed of perhaps 200 pairs (Shuford and Gardali, 2008c).	Low	Potential to migrate through the proposed OWEF site. No suitable breeding habitat exists within the proposed OWEF site.
Dendroica petechia brewsteri Yellow warbler	Federal – SC, BCC State – SSC BLM – None	Occurs principally as a migrant and summer resident in California. Breeds April through July and generally occupies riparian vegetation in close proximity to water along streams and in wet meadows (Lowther et al., 1999, as cited in Shuford and Gardali, 2008d).	Present	A total of 3 individuals were observed flying through the western portion of the proposed OWEF site during APC surveys in May 2010.
Elanus leucurus White-tailed kite	Federal –None State – FP BLM - None	Prefers riparian woodlands and oak or sycamore groves adjacent to grassland.	Low	Species' habitats not present in the proposed OWEF site.

Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
Empidonax traillii willow flycatcher	Federal – FE (ssp. extimus)/None (ssp. brewsteri) State – SE BLM – None	Neotropical migratory species and two subspecies are known to migrate through southern California during spring and fall. Breeding habitat is restricted to extensive riparian areas with substantial riparian understory and flowing water. During migration, birds may be found in riparian areas and desert habitats, such as mesquite thickets.	Present	One (1) individual observed migrating through the proposed OWEF site in May 2011. No suitable breeding habitat exists within the proposed OWEF site. Individual observed was not identified to subspecies.
Falco columbarius Merlin	Federal – SC State – WL BLM – None	Usually observed in grasslands but can occur in any habitat except dense woodlands. Migratory species.	Present	A total of 3 individuals were observed during migration count surveys: 1 in fall 2009 and 2 in fall 2010. Species not observed during the spring 2010 migration survey or during APC surveys.
Falco mexicanus Prairie falcon	Federal – SC, BCC State – WL BLM – None	Nesting occurs on cliff or bluff ledges or occasionally in old hawk or raven nests; foraging occurs in grassland or desert habitats. Resident species.	Present	A total of 44 observations were made during migration count surveys: 15 in fall 2009, 20 in spring 2010, and 9 in fall 2010. Thirty-seven individuals were observed during the spring 2011 migration survey. Nine (9) additional observations were made during APC surveys.
Falco peregrinus anatum American peregrine falcon	Federal –Delisted, BCC State – Delisted, FP BLM – None	Generally, areas with cliffs near water where prey (shorebirds and ducks) is concentrated. Preferred hunting areas are agricultural fields, meadows, marshes, and lakes. Nesting usually occurs on cliff ledges or in a scrape in debris and occasionally in the old nests of other birds.	Present	Two individuals were observed perched on the existing 500-kV transmission tower in the central portion of the proposed OWEF site (near Sugarloaf Mountain) in fall 2009. Suitable nesting habitat not present within proposed OWEF site.
Lanius ludovicianus Loggerhead shrike	Federal – SC, BCC State – SSC BLM – None	Resident species found in grassland, open sage scrub, chaparral, and desert scrub.	Present	Species was observed regularly throughout the proposed OWEF site during migration counts, the APC study, and the other surveys.
Laterallus jamaicensis coturniculus California black rail	Federal – SC, BCC State – ST, FP BLM – None	In California, a yearlong resident of saline, brackish, and fresh emergent wetlands in the San Francisco Bay area, Sacramento-San Joaquin Delta, coastal southern California at Morro Bay and a few other locations, the Salton Sea, and lower Colorado River area (CDFG, 1999).	None	Species' habitats not present in the proposed OWEF site.
Melanerpes uropygialis Gila woodpecker	Federal – SC, BCC State – SE BLM – None	Permanent resident where found. Nevada and California populations generally constrained to the last riparian remnants of the Colorado River, though small numbers-perhaps up to 100 pair (G. McCaskie, pers. comm., as cited in McCreedy, 2008)-may be still found in the Imperial Valley (Alcorn, 1988; Hunter, 1986, as cited in McCreedy, 2008). Researchers recently discovered a small population in Cercidium-Olneya woodland near the Palo Verde Mountains, raising the possibility that more Gila Woodpeckers may be found in large, old-growth, xeric, riparian woodlands in Imperial County (McCreedy in prep., as cited in McCreedy, 2008).	None	Species' habitats not present in the proposed OWEF site.

Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
Pandion haliaetus **Osprey**	**Federal – SC** **State – WL** **BLM – None**	**Coasts and inland lakes. This species is migratory.**	**Present**	**A total of 10 observations were made during migration count surveys: 1 in fall 2009, 5 in spring 2010, 1 in fall 2010, and 3 in spring 2011. Species not observed during APC surveys.**
Rallus longirostris yumanensis Yuma clapper rail	Federal – FE State – ST, FP BLM – None	Lives in freshwater marshes dominated by cattail (*Typha sp.*) and bulrush (*Scirpus ssp.*) with a mix of riparian tree and shrub species (*Salix exigua, S. gooddingii, Tamarix sp., Tessaria serica, and Baccharis sp.*) along the shoreline of the marsh (Gould, 1975; Smith, 1975; Anderson and Ohmart, 1985; Todd, 1986; and Eddleman, 1989, as cited in USFWS, 2009a). Recent research, suggests that most individuals of this species do not migrate, although the young disperse after the breeding season (CDPR, undated).	None	Species' habitats not present in the proposed OWEF site.
Spizella breweri **Brewer's sparrow**	**Federal – BCC** **State – None** **BLM – None**	**In California, this migratory species winters in the central and southern interior part of the state; favors low, dry vegetation (Audubon WatchList, 2011).**	**Present**	**Observed throughout the year during APC study and also observed during migration counts. Species abundant within proposed OWEF site in the spring.**
Toxostoma lecontei **Le Conte's thrasher**	**Federal – SC, BCC** **State – SSC** **BLM –Sensitive**	**Year-round resident in Mojave and Sonoran desert shrublands, mesquite bosque, and small-stature Joshua tree woodlands (Weigand and Fitton, 2008).**	**Present**	**A total of 22 LeConte's thrashers were observed in the northwest and west-central portions of the proposed OWEF site during the APC study, usually as a solitary individual or occasionally as a group of 2 or 3 individuals. This species observed regularly throughout the site during other surveys, and nesting locations were found.**
Vireo bellii pusillus Least Bell's vireo	Federal – FE, BCC State – SE BLM – None	This migratory species prefers riparian habitat of low, dense, shrubby vegetation in valleys, foothills, and deserts.	Low	Potential to migrate through the proposed OWEF site. No suitable breeding habitat exists within the proposed OWEF site.
Vireo vicinior Gray vireo	Federal – SC, BCC State – SSC BLM – Sensitive	Occurs in chaparral, pinyon-juniper woodland, and Sonoran desert scrub. The total population size in California is probably in the low hundreds, with the majority occurring in San Diego County. In California, the primary breeding range includes the mountains of southern California. Gray vireos are migratory, overwintering primarily in the Sonoran Desert of Mexico or in the extreme southwestern U.S. The San Diego County Bird Atlas resulted in the detection of Gray vireos overwintering in the Sonoran desert of ABDSP in association with a large grove of elephant trees (*Bursera microphylla*) in December 1999 (Unitt, 2000, 2004, as cited in Winter and Hargrove, 2004). This is the first known record of gray vireos overwintering in California. Follow-up surveys have revealed only a single individual at most per survey of the area through 2003 (Hargrove and Rotenberry, 2003, as cited in Winter and Hargrove, 2004). Elephant tree habitat also occurs in Imperial County, but it is unknown whether any focused winter surveys have been conducted there (Winter and Hargrove, 2004).	Low	Potential to migrate through the proposed OWEF site. Elephant trees are not present in the proposed OWEF site.

Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
Mammals				
Antrozous pallidus Pallid bat	Federal – None State – SSC BLM – Sensitive	Wide variety of habitats in all but highest elevations. Most common in open, dry habitats with rocky areas for roosting.	High	Not detected during bat surveys.
Corynorhinus townsendii Townsend's western big-eared bat	Federal – None State – SSC BLM – Sensitive	All but alpine and subalpine habitats. Roosts in caves or abandoned mines, occasionally in buildings.	Moderate	Not detected during bat surveys.
Eumops perotis californicus **Western mastiff-bat**	**Federal – None** **State – SSC** **BLM – Sensitive**	**Open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban areas.**	Present	**Detected in the western portion of the proposed OWEF site.**
Macrotus californicus California leaf-nosed bat	Federal – None State – SSC BLM – Sensitive	Desert scrub areas; roosts by day in caves, abandoned mines, and tunnels. Occurs in small numbers; rarely seen. Doesn't hibernate so is restricted to warmer climates (Bats of San Diego County, 2006).	Moderate	Not detected during bat surveys.
Myotis ciliolabrum Small-footed myotis	Federal – None State – None BLM – Sensitive	Wide variety of habitats, primarily arid wooded and brushy uplands near water (CDFG, 1990).	High	Not detected during bat surveys.
Myotis evotis Long-eared myotis	Federal – None State – None BLM – Sensitive	Lives in coniferous forests in mountain areas, roosts in small colonies in caves, buildings and under tree bark (Bats of San Diego County, 2006).	Low	Not detected during bat surveys.
Myotis thysanodes Fringed myotis	Federal – None State – None BLM – Sensitive	Lives in oak and juniper forests, desert scrub. Roosts in caves, abandoned mines, or buildings (Bats of San Diego County, 2006).	Moderate	Not detected during bat surveys.
Myotis velifer Cave myotis	Federal – None State – SSC BLM – Sensitive	This species is found primarily at lower elevations (the Sonoran and Transition life zones) of the arid southwest, in areas dominated by creosote bush, palo verde, brittlebush, and cactus. In California, it occurs only along the Colorado River (Western Bat Working Group, 2005).	None	Proposed OWEF site is not along the Colorado River.
Myotis yumanensis Yuma myotis	Federal – None State – None BLM – Sensitive	Optimal habitat is open forests and woodlands with open water.	Moderate	Not detected during bat surveys.
Ovis canadensis nelsoni **(Distinct Population Segment)** **Peninsular bighorn sheep (PBS)**	**Federal – FE** **State – ST, FP** **BLM – None**	**Semi-open, precipitous terrain with rocky slopes, ridges, and cliffs or canyons; from alpine meadow to hot desert between 300 and 4,000 feet AMSL. Species use a wide variety of plant types as food sources including shrubs, forbs, cacti, and grasses (USFWS, 2001). Although steep, escape-route terrain is closely associated with PBS, low rolling and flat terrain including foothills and washes provide an alternative source of**	**Present**	**PBS were observed in the proposed OWEF site in 2010 and 2011. All of these observations were in the I-8 Island in the southwest portion of Site 1. PBS lambing sites have also been documented by CDFG in the I-8 Island. PBS have also been observed along Devil's Canyon to the south of Site 1. Suitable habitat (i.e., steep, escape-route terrain) occurs to the west and**

Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
		high-quality browse forage during times when resources become limited (USFWS, 2001). Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. Alluvial fans are also used for breeding, feeding, and movement (USFWS, 2001).		south of Site 1. Suitable habitat also occurs to the west of Site 2, although it is considered marginal because it does not contain an abundance of steep, escape-route terrain. The 2011 HELIX/Western Tracking Institute PBS study indicates that, with the exception of the portion of the I-8 Island in the southwest portion of Site 1, the proposed OWEF site is not currently occupied.
Taxidea taxus American badger	Federal – None State – SSC BLM – None	American badgers occur primarily in grasslands, parklands, farms, and other treeless areas with friable soil and a supply of rodent prey. They are also found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows (Sullivan, 1996).	Present	Tracks and 3 badger dens were observed in the northern portion of the proposed OWEF site.

Source: HELIX, 2011c

*Species in **bold-face** type were observed.

Status Codes:

Federal

U.S. Fish and Wildlife Service (USFWS, 2011)
FE = federally listed endangered
FT = federally listed threatened
PT = federally proposed threatened
Delisted = no longer federally listed due to recovery
SC = Species of Concern is an informal term that refers to those species which might be in need of concentrated conservation actions.
BCC = Bird of Conservation Concern (USFWS, 2008)

BLM (CDFG, 2011)
BLM Sensitive = Species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Federal Endangered Species Act.

State

California Department of Fish and Game (CDFG, 2011)
SE = state listed endangered
ST = state listed threatened
FP = fully protected
WL = taxa to watch (the birds on this watch list are 1) not on the current species of special concern list but were on previous lists and they have not been state listed under California Endangered Species Act; 2) were previously state or federally listed and now are on neither list; or 3) are on the list of FP species.
SSC = species of special concern

Flat-tailed Horned Lizard

Natural History

The FTHL is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, the FTHL is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of the habitat for the species is in Imperial County (Turner et al., 1980, as cited in FTHL ICC, 2003). The FHTL Rangewide Management Strategy (2003) established Management Areas for the conservation and recovery of the FTHL. The proposed OWEF site provides connectivity and an important habitat linkage between the adjacent Yuha and West Mesa Management Areas.

Human activities have resulted in the conversion of approximately 49 percent of the historic habitat of the FTHL (FTHL ICC, 2003). The decline in the FTHL population is primarily due to effects from utility lines, roads, geothermal development, sand and gravel mining, ORV recreation, waste disposal sites, military activities, pesticide use, and U.S. Border Patrol activities (FTHL ICC, 2003). The Argentine ant (*Linepithema humile*), an invasive species, was considered as a possible threat, but dismissed as such, since the climate of the Action Area is too dry for Argentine ants (FTHL ICC, 2003).

Survey Results

Historical data indicates that the FTHL was once present in eastern San Diego County as well as the Imperial Valley (Turner et al., 1980; and Hodges, 1997, as cited in FTHL ICC, 2003). HELIX conducted a database search of the CDFG's CNDDB (accessed September 27, 2010) and determined that four FTHLs have been reported in or near the proposed OWEF site. The one outside the proposed OWEF site was reported in 1932. Three FTHL were reported in 1982; the first location is near the northwest corner of the proposed OWEF site along Imperial Highway; the second is near Imperial Highway and the existing 500 kV transmission line; while the third reported location is near Imperial Highway and Shell Canyon Road (see Figure 3.23-1). It is not possible to determine if these detections were within the proposed OWEF site because the CNDDB includes an approximately 3,000-foot buffer around each of these points, which is due to the low accuracy of the locations of the reported sightings. The CNDDB search did not return reports of FTHL found within or near the proposed OWEF site after 1982. HELIX also conducted a database search using the BLM's reported data for FTHL. The BLM reported data includes one reported FTHL sighting within the proposed OWEF site east of Shell Canyon Road in the northeast portion of Site 1 (date of the reported sighting was July 20, 2005).

A total of 18 FTHL were found within the study area during the FTHL survey as well as during surveys conducted for other species by HELIX. All of the FTHL were found east of Shell Canyon Road in the northeastern portion of the study area. No FTHL were found west of Shell Canyon Road during surveys of the FTHL plots or during any of the other surveys conducted in the proposed OWEF site (e.g., special status plants, burrowing owl [*Athene cunicularia*], and bird surveys). Based on the exhaustive field surveys completed, the current FTHL distribution within the study area appears to be from Shell Canyon Road to the east; although, in accordance with the FTHL Rangewide Management Strategy, all contiguous habitat within two miles of a FTHL sighting is assumed to be occupied by FTHL.

The desert horned lizard (*Phrynosoma platyrhinos*; DHL), which is not a special status species, was found throughout the majority of the proposed OWEF site, with the exception of an area in the western portion of Site 1. The ranges of FTHL and DHL overlap in the northeast portion of the proposed OWEF site. Each of the nine survey plots where FTHL were documented during surveys also contained DHL.

FTHLs were found in open desert scrub vegetation communities such as allscale scrub, creosote bush scrub, creosote bush-white bursage scrub, creosote bush-allscale scrub, and creosote bush-fourwing saltbush scrub. Dominant plant species recorded at FTHL sightings were creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), Sahara mustard (*Brassica tournefortii*), desert plantain (*Plantago ovata*), *Cryptantha* sp., Emory's indigo bush (*Psorothamnus emoryi*), ocotillo (*Fouquieria splendens*), desert sand verbena (*Abronia villosa* var. *villosa*), saltbush (*Atriplex* sp.), and Mojave spine flower (*Chorizanthe spinosa*).

The majority of the proposed OWEF site is composed of gravel and gravelly sands of varying degrees of coarseness. Finer, windblown sandy areas occur in discrete patches in several areas of the proposed OWEF site; some of the larger areas include two areas in the extreme southwestern portion of the proposed OWEF site north of westbound I-8; an area just east of Sugarloaf Mountain and north of eastbound I-8 containing sand dunes; and another small area north of the Imperial Freeway and west of Shell Canyon Road. The majority of the lower elevation area east of Shell Canyon Road is comprised of fine, windblown sand containing hummocks.

Barefoot Banded Gecko

Natural History

The barefoot banded gecko has a limited distribution ranging from eastern San Diego County, western Imperial County, to as far south as central Baja California, Mexico, along eastern Peninsular Ranges (CDFG, 2004; Grismer, 2002). The proposed OWEF site is located at the eastern edge of the known species range.

The barefoot banded gecko is strictly nocturnal and active above ground when daytime temperatures are above 100 degrees Fahrenheit and when nighttime temperatures are in the high 80s. They are most active above ground from May through July and can be found as early as February and as late as September (CDFG, 2010). The barefoot banded gecko has soft skin with fine granular scales which causes it to seek humid conditions. The barefoot banded gecko becomes active above ground when humidity is about 25 percent.

The barefoot banded gecko inhabits arid desert slopes with habitat consisting of large boulders and rock outcrops at the heads of canyons and are found at elevations ranging from sea level to 2,300 feet AMSL (Grismer, 2002; Dugan, 2011a). The barefoot banded gecko spends most of its life deep in rock crevices and subterranean chambers where the humidity is relatively higher then above ground (CDFG, 2004). Their diet consists of various insects.

Survey Results

The barefoot banded gecko was not detected despite exhaustive searches which totaled fifty survey hours (Dugan, 2011a). The CDFG survey protocol (CDFG, 2010) was prepared to maximize detection and states that, "*if no lizards are detected within four surveys according to this protocol, it will be assumed the species is not present in the surveyed area.*" Therefore, even though surveys can be inconclusive, barefoot banded gecko is assumed to be absent within the survey area (see Figure 3.23-2).

Subsequent changes have been made to the preliminary project design since the 2010 surveys were conducted. Turbines in the southwest corner of Site 1, which were located in suitable barefoot banded gecko habitat, were eliminated from the project design. The redesign of the access roads and underground collection system in Site 2 includes several areas that fall outside of the 2010 barefoot banded gecko survey area and within potential habitat for the species. The portions of the redesigned project that occur within suitable barefoot banded gecko habitat and outside of the areas surveyed in 2010 were surveyed in 2011, and the species was not found (Dugan, 2011b)

Raptor Migration

The purpose of the raptor migration study was to document the diurnal raptor activity within the proposed OWEF area in order to provide a risk assessment for these species. Two years of raptor migration counts were conducted for the OWEF project area, including counts in fall 2009, spring and fall 2010, and spring 2011 (HELIX, 2011c; see also Appendix L7). The methods of each study were developed in coordination with the BLM and were based on the recommendations provided in the California Energy Commission's (CEC's) Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (CEC and CDFG, 2007).

Results—Raptor Use and Relative Abundance

Overall, more raptors were observed in spring 2011 compared to previous seasons (HELIX, 2011d). A total of 935 raptors/large birds were observed on the proposed OWEF site during spring 2011 compared to totals of 165, 522, and 451 during fall 2009, spring 2010, and fall 2010, respectively. Raptor use of the site has varied across the seasons with average observations per hour at 0.216, 0.548, 0.781, and 1.910 for the fall 2009, spring 2010, fall 2010, and spring 2011 seasons, respectively.

In terms of raw numbers of observations, no patterns or seasonal differences were noted with the exception of the red-tailed hawk and turkey vulture. Red-tailed hawk observations increased in abundance through the 4 seasons of counts, and were highest during spring 2011. Prior to spring 2011, however, no red-tailed hawk nests were observed within the project site. This season, an active red-railed hawk nest was discovered. A second active red-tailed hawk nest was discovered off-site but just east of the town of Ocotillo and north of Evan Hewes Highway. The presence of these 2 active nests may account for the increase in observations of this species during the spring 2011 survey. Turkey vultures were more abundant during both spring seasons (spring 2010, 316 observations; spring 2011, 456 observations) compared to the fall seasons (fall 2009, 15 observations; fall 2010, 83 observations).

In terms of raptor use of the site (number of observations per hour), prairie falcon and turkey vulture use of the site was approximately 3 times greater in spring 2011 compared to previous seasons, and Swainson's hawk use of the site was 5 times greater in spring 2011 compared to previous seasons. Unidentified raptors were 5 times greater in spring 2011 compared to last spring and 3 times greater than fall 2010.

During the fall 2009 migration counts, the species with the highest use of the proposed OWEF site were the red-tailed hawk (*Buteo jamaicensis*; 0.089 observation/hr), American kestrel (*Falco sparverius*; 0.022 observation/hr), prairie falcon (0.020 observation/hr), and turkey vulture (0.020 observation/hr). During the spring 2010 migration counts, the species with the highest use of the proposed OWEF site were the turkey vulture (0.332 observation/hr), red-tailed hawk (0.127 observation/hr), and prairie falcon (0.021

observation/hr). During the fall 2010 migration counts, the species with the highest use of the proposed OWEF site were the red-tailed hawk (0.431 observation/hr), turkey vulture (0.144 observation/hr), and American kestrel (0.074 observation/hr). During spring 2011, the species with the highest use of the proposed OWEF site were the turkey vulture (0.932 observation/hr), red-tailed hawk (0.56 observation/hr), and Swainson's hawk (0.104 observation/hr).

Golden eagle (*Aquila chrysaetos*) use of the proposed OWEF site has remained low over the nearly 3 years of raptor migration counts: 0.01 observation/hr during fall 2009 migration counts, none during spring 2010 migration counts, and 0.02 observation/hr during fall 2010 and spring 2011 migration counts. This species was observed in fall 2010 during APCs as further described below. The species was also observed during a burrowing owl survey on June 17, 2010 (see Figure 3.23-3). Note that the raptor migration counts and APC surveys are different studies. Although a raptor migration count and APC may have occurred on the same day, these surveys were never done concurrently. These golden eagle use estimates suggest relatively low use of the proposed OWEF site during the study period, especially when compared to other projects in California such as the High Winds Wind Resource Area (0.3 eagle/30-minute survey during pre-construction surveys and 0.1 eagle/30-minute survey during the post-construction period; Kerlinger et al. 2005, 2006, as cited in HELIX, 2010c) and the Diablo Winds Wind Resource Area (0.3 eagle/30-minute survey during the post-construction period; WEST, 2008, as cited in HELIX, 2010c). Golden eagle count information for other projects in the vicinity was not available between 2009 and 2011 for comparison to the data collected for the OWEF project site.

The turkey vulture accounted for 42 percent of the total observations during the study period (Table 3.23-2 [Relative Abundance column]). The red-tailed hawk constituted 34 percent of the total observations. Prairie falcon and American kestrel accounted for four percent each of total observations. There were 169raptor sightings that could not be definitively identified, which accounted for approximately eight percent of observations.

Table 3.23-2. Raptor Use and Relative Abundance

Species	Fall 2009		Spring 2010		Fall 2010		Spring 2011		Total		Relative Abundance
	No.	No./hr	No.	No./hr	No.	No./hr	No.	No./hr	No.	No./hr	
American kestrel	17	0.022	16	0.017	43	0.074	18	0.037	94	0.034	0.045
Cooper's hawk	2	0.003	1	0.001	3	0.005	3	0.006	9	0.003	0.004
Ferruginous hawk	4	0.005	0	0	0	0	0	0	4	0.001	<0.01
Golden eagle	9	0.012	0	0	11	0.019	11	0.022	31	0.011	0.015
Merlin	1	0.001	0	0	2	0.003	0	0	3	0.001	<0.01
Northern harrier	8	0.010	2	0.002	2	0.003	0	0	12	0.004	<0.01
Osprey	1	0.001	5	0.005	1	0.002	3	0.006	10	0.004	<0.01
Prairie falcon	15	0.020	22	0.023	9	0.016	37	0.076	83	0.030	0.04
Red-tailed hawk	68	0.089	121	0.127	249	0.431	274	0.560	712	0.256	0.344
Sharp-shinned hawk	1	0.001	0	0	3	0.005	1	0.002	5	0.002	<0.01
Swainson's hawk	1	0.001	2	0.002	17	0.029	51	0.104	71	0.026	0.034
Turkey vulture	15	0.020	316	0.332	83	0.144	456	0.932	870	0.313	0.420
Unidentified raptor	23	0.030	37	0.039	28	0.048	81	0.165	169	0.061	0.082
Total Observations	**165**	**0.216**	**522**	**0.548**	**451**	**0.781**	**935**	**1.910**	**2,073**	**0.745**	
Total Identified Species	12		8		11		9		12		
Observation Hours	763		952		577.5		489.5		2,782		

While evaluating the data from all 2009 through 2011 avian species surveys, it was important to take the recent drought and its likely effects on raptor use of the site into account. The California Department of Water Resources advises that California is entering its fourth year of serious drought as a result of below average precipitation and run-off since the autumn of 2006 (State of California, 2010, as cited in WRI 2011). Raptor use of the OWEF site may be higher in years with above average rainfall if the rainfall results in a greater abundance of prey and if the raptor species spend more time foraging or hunting for the prey items.

It should be noted that no California condors (*Gymnogyps californianus*) were observed during the raptor migration counts or any other survey conducted for the proposed project. Historically, California condors occurred throughout the southwestern U.S. into Mexico (as well as in pockets of New York and Florida; Audubon California, 2011). However, by the early 1900s California condors were largely confined to the rugged mountains and foothills of central and southern California. California condors have been released in California and Arizona in the 1990s and in Baja California, Mexico in 2003. The proposed OWEF site is not within the current range of this species (Audubon California, 2011).

Avian Point Counts

Avian point counts were conducted in accordance with the survey protocols approved by BLM (HELIX, 2010a) and in accordance with the bird use count methods described in the CEC's Guidelines for Reducing Bird Impacts from Wind Development (CEC and CDFG, 2007). Avian point counts were conducted to record bird species, abundance, behavior, and flight characteristics to assess if the proposed OWEF site is part of a major migratory movement corridor and to assess the overall collision risk for active avian species with the WTGs.

Survey Results

The proposed OWEF site does not support large populations of resident avian species, and many of the resident species observations, including raptor observations, were likely repeat observations of the same individual. The proposed OWEF site does not appear to be part of a major migration corridor for either common or special-status species.

Twelve (12) special-status avian species were observed during APC including one state listed as threatened species (Swainson's hawk), which was seen infrequently and only during the spring migration period. Golden eagles were seen only once during the APCs (September 2, 2009) and were observed flying at a height above the rotor swept area (RSA). In addition, 11 sensitive (non-listed) species were detected during the weekly point counts including golden eagle, burrowing owl, loggerhead shrike (*Lanius ludovicianus*), Vaux's swift (*Chaetura vauxi*), LeConte's thrasher (*Toxostoma lecontei*), yellow warbler (*Dendroica petechia*), brant (*Branta bernicla*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), and prairie falcon as further discussed below.

Burrowing owls occur in the proposed OWEF site in low densities and use the site during the breeding season and wintering season (see burrowing owl discussion below). The other observations of special-status raptor species included a single observation each of northern harrier and ferruginous hawk, which were both observed flying above the RSA. The most abundant sensitive species was loggerhead shrike, which accounted for approximately three percent of the total bird observations, which likely was the result of several resident individuals being documented on multiple occasions throughout the year. The other sensitive bird species (yellow warbler, Vaux's swift, brant, and LeConte's thrasher) were seen in very low numbers primarily in the spring. Cooper's hawk and prairie falcon also were observed during surveys.

A total of 77 species and 6,387 total observations were documented during the weekly point counts over the year-long study. Species abundance was variable throughout the year with the biggest fluctuations occurring between seasons (i.e., species abundance was comparatively greater in the winter and spring compared to the fall). The weekly surveys began in fall, which had one of the lower seasonal detection rates (5.4 individuals per 30-minute period). The lower detection rate corresponded with very high daytime temperatures in September and early October. Detection rates would have been lower during fall, but substantial numbers of house finches (*Carpodacus mexicanus*) were documented flying through the proposed OWEF site. Winter averaged 7.2 individuals detected per 30-minute period, and spring averaged 8.3 individuals detected per 30-minute period. Species abundance varied little in winter months, with fluctuations in house finch numbers typically responsible for variations. Migratory species were responsible for major fluctuations in spring. At the peak of spring migration (first week of April) there were 306 individuals detected, most of which were migratory. This yielded the highest weekly detection rate for the year of 14.4 individuals per 30-minute period. Hot temperatures and the absence of migratory species accounted for low abundance in summer (average of 3.0 individuals per 30-minute period).

Raptor observations accounted for 3.6 percent of birds recorded during the year. Peak observations occurred in the spring, with the higher numbers likely correlated with an increase in prey availability. The majority of these sightings were common desert species, including the red-tailed hawk, turkey vulture, American kestrel, and prairie falcon. The other raptor observations included a single individual of each of these three species (ferruginous hawk, Cooper's hawk, and northern harrier) and Swainson's hawk was seen on three separate occasions in spring 2010.

Migratory species account for 19 percent of total bird observations over the year-long study. Approximately 68 percent of individuals that were considered migrants occurred during the peak of spring migration (March-April 2010), and the average detection rate was 4.38 migratory individuals per 30-minute period between March and April. It is also notable that migratory species abundance surpassed that of resident species twice within this period. This is in contrast to fall migration where resident species outweighed migratory species 10:1. The amount of food resources available to migrants in spring is much greater than in winter, which is likely the primary factor responsible for the disproportionate numbers associated with migratory species richness and abundance for these two migratory periods. Even with the greater migration abundance in spring, site use by migratory species is considered low given the size of the proposed OWEF site. Many of the migratory species were detected in relatively low numbers, which indicates this is not a major migratory corridor for passerines. Exceptions to this are Bullock's oriole (*Icterus bullockii*), western kingbird (*Tyrannus verticalis*), and swallows (Family Hirundinidae).

Results of the year-long survey averaged a detection rate of 5.96 individuals per 30-minute period, with peak detection rates occurring in March and April. This average is above the range of two other studies conducted in arid regions. A study conducted in Blythe during the spring of 2009 (EDAW, AECOM, and Bloom Biological, 2009, as cited in HELIX, 2010d) resulted in an average detection rate of 1.05 individuals per 30-minute period. Another study conducted in Barstow in the spring and fall of 2006 averaged 2.62 individuals per 30-minute period (Jones and Bloom, 2007, as cited in HELIX, 2010d). A study conducted in 2009 in Clark County resulted in an average detection rate (somewhat higher than the study area) of 16 individuals per 30-minute period. The comparatively low overall detection rates in arid regions are likely associated with lower amounts of resources (food, water, shelter, etc.) as compared to coastal and mountainous areas. The proposed OWEF site does not contain any permanent water resources, and prey availability is low through most of the year. The exception is a few months in spring following the short rainy season. Plants during this time of year were in bloom, and there seemed to be a substantial increase in insect and small mammal abundance. Small mammal activity was dramatically lower in the summer and fall, especially when daytime temperatures were greater than 100 degrees Fahrenheit.

Avian Radar Survey

DeTect, Inc. (DeTect) was contracted to conduct an Avian Radar Survey at the proposed OWEF site. A MERLIN Avian Radar System collected data on bird movements and migration using both vertical scanning and horizontal surveillance radars.

MERLIN radar systems precisely track targets within avian size ranges, and displays data in real-time (at the radar and remotely via the internet) and records all data on targets, tracks, and system parameters to internal databases. A target is an object detected by MERLIN radar and identified by MERLIN software as a biological object (e.g. bird, bat, insect) based on scanned size, speed, and other characteristics.

Methods

For the proposed OWEF study, the horizontal scanning radar (HSR) settings were optimized for detecting bighorn sheep. It is important to note that the sheep-optimized horizontal radar settings would have only affected target direction information and not target counts or passage rates which are derived only from the vertical scanning radar (VSR) data.

The VSR was fully configured for detecting and tracking bird activity. The VSR data was used to determine target altitudes and is the primary dataset used to determine target passage rates through the rotor swept zones (RSZ) for mortality risk assessments.

The recorded databases were queried and used to develop statistical data from the target movements recorded at the proposed OWEF site. Radar data was analyzed for the first year of data collection (September 15, 2010–July 9, 2011; DeTect, 2011). A DeTect biologist set up the MERLIN avian radar system, after which the system ran automatically and was remotely monitored daily for the remaining data collection period.

The average altitude of each target above ground level (AGL) was generated and used to derive mean and median target heights, as well as to group targets into one of three categories: below RSZ, in RSZ, or above RSZ to a maximum height of approximately 2,800 meters (m) AGL. Some migrating birds fly even higher than this altitude, but these were not detected in the survey. The turbine dimensions used for the altitude analyses included a RSZ ranging from 29.9 m to 133.8 m AGL (DeTect, 2011).

The VSR data queries were standardized to a target passage rate of 1-kilometer (km) front per hour, generally the industry standard for most migratory and wind energy avian studies and risk analysis. This includes targets detected within 0.5 km to either side of the radar and up to approximately 2,800 m AGL, for a total frontal width of 1 km, during a one-hour period. This area occurs entirely within the radar scanned zone (DeTect, 2011).

Passage rates were standardized using the number of minutes with radar data within a given time period (minus any time with rain) and collated for each dawn (30 minutes [mins.] before sunrise to 30 mins. after sunrise), day (30 mins. after sunrise to 30 mins. before sunset), dusk (30 mins. before sunset to 30 mins. after sunset), and night (30 mins. after sunset to 30 mins. before sunrise the next day), as well as the entire season. The average target passage rates (below, within, and above the RSZ, as well as the total) and mean and median target heights were calculated for dawns, days, dusks, and nights, as well as hourly during the survey. The HSR data collected was used only to develop information on the movement of targets throughout the survey area and was not used to derive any target counts or passage rates.

Due to the difficulty of comparing target passage rates from other radar systems, target passage rates at the proposed OWEF site were compared to other wind project studies using DeTect avian radar systems on the southeast coast of Texas and in western New York. While difficult to determine the degree that region and local topography or habitat may have influenced these target passage rates, they do provide target passage rates calculated the same way using data from the same DeTect vertical radars.

Survey Results

Target passage rates varied considerably throughout each season, but also by time of day. Average target passage rates were greatest during the fall 2010 season and lowest during the summer 2011 season. Daytime target passage rates averaged the greatest, and were much greater than the other three biological periods during the fall and winter seasons. During the spring and summer seasons, nighttime target passage rates were similar to daytime target passage rates, but dawn and dusk rates stayed relatively low (DeTect, 2011).

Table 3.23-3. Average Target Passage Rates During Four Biological Periods and Four Seasons

	Dawn	Day	Dusk	Night
Fall 2010	241.8	556.7	205.6	253.3
Winter 2010-2011	21.2	218.8	23.6	41.6
Spring 2011	62.5	222.4	26.4	215.6
Summer 2011	25.8	77.5	10.4	68.7

The nightly target passage rates observed at the proposed OWEF site during all seasons of year one were less than those observed at the other two wind project sites. Daytime target passage rates at the proposed OWEF were similar to those from the proposed Ripley-Westfield Wind Farm site in New York, but much lower than Gulf Wind I Wind Farm site in Texas, during similar seasons (DeTect, 2011).

When targets were combined by season at the proposed OWEF site, the majority passed above the rotor RSZ of 29.9 m to 133.8 m AGL during year one. At least 80 percent of targets passed above the RSZ during all time periods of each season except for dawns and dusks during the winter and dusks during the summer, which averaged lower percentages. Mean and median target heights were typically above the RSZ of 29.9 m to 133.8 m AGL, although means, and especially median target heights which averaged lower, occurred more frequently below 133.8 m AGL starting in November 2010 and tapering off during spring 2011 (DeTect, 2011).

Target movement patterns also varied by season and by biological period (i.e., dawn, day, dusk, and night). The fall 2010 season showed most targets moving southeast and east, likely indicative of fall nocturnal migration. Days and dusks during fall were relatively dispersed, but dawns showed an east/northeast movement trend. The winter 2010-2011 season had relatively fewer targets than the other seasons, both in number and altitude and had variable movement patterns (east/northeast during dawns, northwest during days, west during dusks, and northwest during nights). During the spring 2011 season, a northerly target movement was expected because of spring nocturnal migration (at least during nights); however, this was not the case as all time periods showed southerly movements. The summer 2011 season had target movements that were relatively dispersed and lacked a prominent target movement pattern during any of the four time periods (DeTect, 2011).

Golden Eagle Nest Survey

Natural History

Golden eagle is an uncommon permanent resident and migrant throughout California, except in the center of the Central Valley. This species is perhaps more common in southern California than in the north. Habitat typically includes rolling foothills, mountain areas, sage-juniper flats, and desert. Golden eagles eat mostly hares, rabbits, and rodents, but will eat other mammals, birds, reptiles, and some carrion. This species needs open terrain for hunting such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats (Zeiner et al., 1988).

Survey Results

While evaluating the data from these 2010 surveys, it was important to take the recent drought and its likely effects on golden eagle reproduction into account. The California Department of Water Resources advises that California is entering its fourth year of serious drought as a result of below average precipitation and run-off since the autumn of 2006 (State of California, 2010, as cited in WRI, 2011). Without knowing the effects of the drought on golden eagle breeding, one might come to a false conclusion about the population of golden eagles within the survey area. Because breeding in southern California begins in January, and this survey was initiated in late March when only those eagles that were successful would be incubating, no opportunity was afforded to get a complete count of golden eagle pairs that attempted to build nests and reproduce but failed. Therefore, the number of active territorial pairs of golden eagles in the survey area could be higher than those actually identified (WRI, 2011).

During the 2010 occupancy surveys, 21 golden eagle nests were observed that accounted for five golden eagle territories, 2 of which were considered active territories in 2010 (i.e., Coyote Mountains West and Table Mountain). One nest in Coyote Mountains West showed signs of early activity in 2010, but no eggs or incubating adults were observed at the nest site. Two nest sites in the Table Mountain territory showed possible signs of activity in 2010, but no eggs or incubating adults were observed.

WRI has documented successful breeding of golden eagles at both Table Mountain (most recent in 2004) and Carrizo Gorge (most recent in 2007) territories in the past few years. Coyote Mountains East has been inactive for a number of years due primarily to drought and disturbance by off-road vehicle activity. Coyote Mountains West has been active with nest activity in recent years, but no young have been seen produced. No nests were discovered in the historic Mountain Springs territory (WRI, 2011). The lack of successful golden eagle nesting in the last few years is not unusual because healthy populations of golden eagles may average as few as 62 percent of pairs breeding in any one year (Kochert et al., 2002, as cited in WRI, 2011).

Of the 5 nesting territories in the survey area, the closest nest to the proposed OWEF site is an inactive nest 2 miles north in the Coyote Mountains. The closest active nest to the proposed OWEF site is approximately 3.2 miles to the north, also in the Coyote Mountains. Another relatively close active nest is approximately 6 miles to the southwest of the proposed OWEF site, near Table Mountain.

Burrowing Owl

Natural History

The burrowing owl is a year-long resident of open, dry grassland and desert habitats. It is also found as a resident in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats as well as agricultural lands. This small owl is found the length of the State of California in suitable habitats. The burrowing owl is migratory over much of its range, even in southern California (Unitt, 2004). Burrowing owl numbers have been markedly reduced in California for at least the past 60 years. Conversion of grasslands, other habitat destruction, and poisoning of ground squirrels, has contributed to the reduction in numbers in recent decades, which was noted in the 1940s and earlier. Burrowing owl observations on the proposed OWEF site during the non-breeding season is likely a combination of owls that use the Imperial Valley for breeding and owls that migrate through and/or overwinter in the proposed OWEF site from their breeding grounds in Canada and the northern United States.

Survey Results

Three burrowing owls and one active burrow were observed during the January 2010 habitat assessment, 2 burrowing owl pairs were documented during the June/July 2010 breeding season surveys, and 20 burrowing owls were documented during the fall 2009/winter 2010 special status plant species surveys (17 burrowing owls in Site 1 and 3 burrowing owls in Site 2. Ten of the 20 burrowing owls were observed with a burrow (HELIX, 2010e and 2011e).The new areas that were added to the preliminary project footprint that fell outside of the 2010 breeding season survey areas were surveyed for burrowing owl burrows as part of the fall 2010 special status plant surveys, and no additional burrows were noted. These areas, along with the rest of the proposed OWEF site were surveyed again during the fall of 2010 and summer 2011 survey windows.

During the fall 2010 burrowing owl survey, 21 burrowing owl locations were found spread throughout much of the proposed OWEF site with the exception of the northwest and northeast portions of Site 1. Ten of these locations were of burrowing owls with burrows; 9 of these locations were just of burrowing owls, and 2 of these locations were just of burrows. During the following June 2011 breeding season burrowing owl survey, 4 burrowing owls (likely a family group) were observed at a single burrow in the southwest portion of Site 1 (HELIX, 2011e). This was at one of the locations where a burrowing owl with a burrow was observed in fall 2010.

Bats

Natural History

Bats use the landscape for a variety of reasons: foraging, day roosting, night or feeding roosts, water, and social activity. This “ecological neighborhood” can be rather complex, sometimes spanning vast areas. Preliminary assessments of the proposed OWEF site suggested that twenty-one bat species may potentially occur in the project area. This estimate was based on an understanding of the species’ natural history and habitat preferences.

Survey Results

Five bat species were ultimately identified on the proposed OWEF site: California myotis (*Myotis californicus*), big brown bat (*Eptesicus fuscus*), Mexican free-tailed bat (*Tadarida brasiliensis*), western pipistrelle (*Pipistrellus hesperus*), and western mastiff bat (*Eumops perotis californicus*). The western mastiff bat is the only special status species (BLM Sensitive). In 2010, the majority of the bats (approximately 77 percent) were recorded during the spring (103 calls; May-June) and summer (56 calls; August-September). No significant bat activity was recorded or observed during the winter or fall survey periods in 2010 (winter = 15 calls; fall = 31 calls; Rahn Conservation Consulting, 2011a). In winter/spring 2010-2011, a total of 68 calls were recorded; 58 of which could be identified to species. The reduction in the number of calls recorded between spring 2010 and winter/spring 2010-2011 could be the result of an increase in rain events during the latter survey period (Rahn Conservation Consulting, 2011b).

Bat activity was recorded at only seven distinct locations within the proposed OWEF site. The remainder of the proposed OWEF site showed no bat activity, either through the echolocation recording or use of the thermal imaging camera. Most bat activity was located along the western edge of the proposed OWEF site. Other locations identified during the surveys recorded bats only along the perimeter of the proposed OWEF site. The thermal imaging camera was used to identify the total number of bats flying when an echolocation signal was recorded. More than 95 percent of the time, the calls recorded represented only a single individual flying in the vicinity. Bats were infrequently observed in the interior of the proposed OWEF site during the survey, and only from a distance using the thermal imaging camera (Rahn Conservation Consulting, 2011a).

Overall, the bat species recorded was surprisingly low with only 57 identifiable calls recorded during the 40 nights of surveys in 2010 (only 21 calls were unable to be identified to species and typically represented fragments of calls within the same frequency range as the species identified during the surveys; Rahn Conservation Consulting, 2011a). In 2010, the most abundant species recorded were the big brown bat (30 percent), the California myotis (23.5 percent), and the western pipistrelle (21 percent). The western mastiff bat and the Mexican free-tailed bat were rarely recorded within the proposed OWEF site (six percent and four percent, respectively). Approximately 10 percent of the calls recorded were unidentifiable (Rahn Conservation Consulting, 2011a).

In 2010-2011, only 58 identifiable calls were recorded from December 2, 2010 through May 20, 2011. The most abundant species recorded were the California myotis (33 percent), big brown bat (22 percent), and western pipistrelle (21 percent). The western mastiff bat and the Mexican free-tailed bat were rarely recorded (seven percent and five percent, respectively). Approximately 15 percent of the call recorded (i.e., 58 out of 68) were unidentifiable (Rahn Conservation Consulting, 2011b).

It is not surprising that the bat use of the proposed OWEF site is remarkably low. More than 70 percent of the surveys conducted in 2010 failed to record a single bat during the night, and bat activity was generally restricted to the perimeter of the proposed OWEF site, with infrequent observations of bats. These results are most likely due to a variety of factors. First, the interior of the proposed OWEF site lacks any form of standing water. For most bat species, this is a vital feature of their habitat. The presence of water also significantly influences the presence and abundance of insect prey. Surveys conducted in similar desert environments such as the Palm Springs area, southern Nevada's Mojave desert, and the dry desert washes of the Great Basin Desert show similar patterns in bat species distribution and associations. Bats observed during the surveys in 2010 were either, moving through the proposed OWEF site (22 percent), actively foraging (60 percent), or were both foraging and moving through (18 percent).

The second factor associated with the low numbers of bats may be due to a lack of suitable roosting sites nearby such as cave formations, suitable cliff faces, and boulders. Very little mining has been done around the proposed OWEF site that would result in the kind of abandoned mines that support bat populations. It was noted, however, that bat frequency and abundance increased outside the proposed OWEF site particularly on the west side of the valley. While bats are known to fly distances of more than 25 miles from a roost site, they typically do so in search of abundant foraging opportunities or water resources, and both of these are generally lacking within the proposed OWEF site.

The results of the long-term echolocation monitoring stations suggest that most of the bats in the proposed OWEF site were flying at lower heights. This is likely true for all species except the western mastiff bat, which is typically found flying at higher elevations than many species, particularly when moving through an area. Observations with the thermal imaging camera showed similar results. For all species of bats detected, they were typically found at elevations between 3 and 75 feet above ground level, which are out of the RSA. Again, the only exception was the western mastiff bat, which was typically observed above 75 feet. Four of the five species detected in the proposed OWEF site are considered to be at low risk and are not considered special status species. The California myotis, western pipistrelle, Mexican free-tailed bat, and big brown bat are rather ubiquitous throughout southern California. All of the species use multiple roost types, except the western pipistrelle which predominantly uses cliffs and crevices.

Similarly, the western mastiff bat is limited to only roosting in cliffs and crevices high enough to drop from and take flight. Only the western mastiff bat is considered a high risk species. This species is typically found roosting in cliff faces at higher elevations and is typically not migratory. It does not hibernate, but may (at least in southern California) make small migratory movements into the warmer areas of Mexico or desert during the winter. This species is severely limited to habitat areas based on its high demand for water (it is the largest bat in North America). The special status of this species is largely due to this water restriction. Because of its larger body size and its wing structure, the western mastiff bat is unable to drink from water sources less than 90 feet. As a result, they are no longer found in many areas that were previously occupied due to habitat loss or conversion. Because there are no water bodies within the proposed OWEF site that could support this species, and foraging potential is rather limited, this rare occurrence is probably from bats only moving through the proposed OWEF site infrequently in search of suitable habitat.

No significant pattern in the distribution or flight behavior of bats was observed. The majority of the bats detected as moving through the proposed OWEF site were following the valley bottoms and desert washes. In the rare instances where bats were detected commuting long distances, they were typically following the Imperial Highway corridor, emerging from unknown roost sites in the west (likely outside the proposed OWEF site), and heading in a southeasterly direction.

It is unlikely that significant numbers of bats occur throughout the proposed OWEF site. All survey results suggest that the majority of the bat population in the local area occurs outside of the Ocotillo valley area. No significant resources for foraging or water exist, severely limiting the bat abundance and diversity, particularly when compared with adjacent mountain ranges to the west and the Imperial Valley to the east.

Peninsular Bighorn Sheep

Agency Meetings

A field meeting was held on February 24, 2011, to discuss the redesigned site plan and to review the Merlin Avian Radar System. Attendees included the Applicant (John Calaway, Glen Hodges, and Natalie McCue), BLM (Donna Clinton), CDFG (Magdalena Rodriguez and Randy Botta), USFWS (Pete Sorenson), DeTect, Inc. (Adam Kelly, Ron Merritt, and Jon Bortle), and HELIX (Shelby Howard). The Proponent described how the preliminary project site plan was redesigned to avoid sensitive environmental portions of the site, including the PBS habitat in the southwest portion of Site 1. DeTect, Inc. provided a demonstration of the Merlin Avian Radar System, including the sensitivity and range of the radar and how the radar links to the video camera.

A field meeting was held on March 8, 2011, to allow the wildlife agencies to evaluate the PBS Essential Habitat on site and to review the methods of the PBS study being conducted by the HELIX team. Those in attendance included Pete Sorenson (USFWS), Magdalena Rodriquez (CDFG), Shelby Howard (HELIX), and Barry Martin (Western Tracking Institute). The field meeting included a search for PBS sign along ridgelines and rocky areas in the southwest portion of Site 1. The wildlife agencies acknowledged and approved the PBS study methods being conducted by HELIX and Western Tracking Institute during the field visit.

An additional field meeting was held on April 20, 2011, to discuss the redesigned site plan and to review the Merlin Avian Radar System. Attendees included the Proponent (Natalie McCue), BLM (Kim Marsden), USFWS (Eric Kershner, Joel Pagel, and Heather Beeler), DeTect, Inc. (Adam Kelly and Ron Merritt), and HELIX (Shelby Howard). The Applicant described how the preliminary project site plan was redesigned to avoid sensitive environmental portions of the site, including the PBS habitat in the southwest portion of Site 1. DeTect, Inc. provided a demonstration of the Merlin Avian Radar System, including the sensitivity and range of the radar and how the radar links to the video camera.

In addition to the field studies, HELIX coordinated with CDFG to obtain unpublished PBS location data from a radio collar/tracking study currently being conducted as mitigation for the Department of Homeland Security/Border Patrol U.S.-Mexico border fence project. Six PBS ewes were captured and radio collared by CDFG in October 2009 in the vicinity of Mountain Spring and their locations are being monitored and documented by CDFG. Location data of the 6 radio-collared ewes were provided for the period between October 2009 and January 2011, including lambing areas used in 2010 (email from Randy Botta to Pete Sorenson dated February 19, 2011). The six collared ewes represent less than 10 percent of the estimated population in the area. The PBS location data were used in combination with the USFWS database of PBS sightings to evaluate sheep use within and adjacent to the project site.

Natural History

PBS occur on steep, open slopes, in canyons, and in washes in hot and dry desert regions where the land is rough, rocky, and sparsely vegetated. Open terrain with good visibility is critical because bighorn sheep primarily rely on their sense of sight to detect predators (USFWS, 2001). Most PBS live between 300 and 4,000 feet in elevation AMSL, where average annual precipitation is less than 4 inches, and daily high temperatures average 40 degrees Celsius (104 degrees Fahrenheit) in the summer. Caves and other forms of shelter (e.g., rock outcrops) are used during inclement weather and for shade during the hotter months (USFWS, 2001).

PBS use a wide variety of plant types as food sources including shrubs, forbs, cacti, and grasses (USFWS, 2001). Although steep, escape-route terrain is closely associated with PBS, low rolling and flat terrain including foothills and washes provide an alternative source of high-quality browse forage during times when resources become limited (USFWS, 2001). Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. Alluvial fans are also used for breeding, feeding, and movement (USFWS, 2001).

PBS are closely associated with mountainous habitat and often are hesitant to venture far from escape terrain (Geist, 1971, as cited in USFWS, 2000). Although they have been documented to move great distances from escape terrain on rare occasions (Schwartz et al., 1986 as cited in USFWS, 2000), it is common to observe animals moving a short distance from escape terrain in search of forage or water sources or moving between neighboring mountain masses. Researchers have documented animals ranging at a variety of distances from mountainous terrain (greater than 20 percent slope), from one-half mile to 1.6 miles (USFWS, 2000). The USFWS Essential Habitat for PBS is generally defined as the area that extends one-half mile out from 20 percent slopes (USFWS, 2000).

PBS exhibit a natural patchy distribution because of natural breaks in mountainous habitat (Schwartz et al., 1986, and Bleich et al., 1990a and 1996, as cited in USFWS 2001). While PBS have been documented in the Peninsular Ranges since early explorers such as Anza observed them in the 1700s (Bolton, 1930 as cited in USFWS, 2001), the distribution of PBS has become more fragmented in the recent past, possibly due to the construction of roads that bisect ancestral bighorn trails and restrict bighorn movement (USFWS, 2001).

An important influence on bighorn sheep population trends are their behavioral responses to human activity. Bighorn sheep were classified as a wilderness species by Aldo Leopold (1933) because they usually declined when confronted with expanding human developments and activities (USFWS, 2010b). Over the past 75 years, numerous other scientists and land managers have expressed concerns regarding the impact of human activities on bighorn sheep populations (Horesji, 1976; Hicks and Elder, 1979; Graham, 1980; Leslie and Douglas, 1980; Hamilton et al., 1982; Stemp, 1983; Miller and Smith, 1985; Gionfriddo and Krausman, 1986; Krausman and Leopold, 1986; Smith and Krausman, 1988; Etchberger et al., 1989; Krausman et al., 2001; Papouchis et al., 2001, as cited in USFWS, 2010b). These concerns have been echoed in the Peninsular Ranges where PBS have altered their movement and habitat use patterns in response to human activity (Jorgensen and Turner, 1973; Hicks, 1978; Olech, 1979; Cunningham, 1982; DeForge and Scott, 1982;Gross 1987; Sanchez et al., 1988, as cited in USFWS, 2010b). The impacts of human development extend beyond the urban edge into PBS habitat. Growing human populations and their increased activities adjacent to and within PBS habitat have the potential to adversely affect PBS by directly converting habitat to human uses and fragmenting remaining use areas. Additionally, the behavioral responses of PBS to human activities may alter how they utilize resources occurring in their environment. These altered behavior patterns may be less than optimal and could eventually negatively affect population trajectories (USFWS, 2010b).

Currently, the PBS is distributed in fragmented populations from the Jacumba Mountains in San Diego County near the U.S./Mexico border to the San Jacinto Mountains in Riverside County (USFWS, 2001). A portion of the site falls within what the USFWS defines as Essential Habitat in the PBS Recovery Plan (USFWS, 2000) as areas within 800 m (one-half mile) of slopes equal to or greater than 20 percent. Essential Habitat is considered essential to the conservation of a species. Designated Critical Habitat for the PBS does not occur on the proposed OWEF site (Figure 4.21-1). The federal Endangered Species Act defines Critical Habitat as "the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features 1) essential to the conservation of the species and 2) which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed that are determined by the Secretary of the Interior to be essential for the conservation of the species." A designation does not set up a preserve or refuge and only applies to situations where federal funding, permits, or projects are involved.

Survey Results

Boyce (2011) recommended the redesign of the preliminary project design to remove turbines from the southwest corner of Site 1 because of the documented sightings of Peninsular bighorn sheep in the I-8 Island (i.e., the area between the eastbound and westbound lanes of I-8, the northern portion of which is in the proposed OWEF site). Also, the area is rated high in the habitat suitability analysis by Rubin, et al. (2009) because bighorn sheep are known to use the Devil's Canyon crossing under I-8 as a means to access the I-8 Island. The project proponent revised the project site plan to eliminate the 14 wind turbines originally proposed in the southwest corner of Site 1.

PBS were observed in the portion of the I-8 Island within Site 1 during other biological surveys for OWEF by HELIX in March and April 2010. PBS were also observed in the I-8 Island during spring 2011. With the exception of the PBS sightings in the portion of the I-8 Island on the OWEF site, PBS have not been noted on the OWEF site during other biological field studies that have been conducted between September 2009 and January 2012.

The PBS location data obtained from CDFG and USFWS and the HELIX/Western Tracking Institute preliminary PBS tracking study data indicate a high level of PBS use near the Devil's Canyon undercrossing of I-8 (southwest of the Site 1) and within the I-8 Island, including the portion of the I-8 Island within and directly adjacent to Site 1. The CDFG tracking data also indicate that 3 three PBS lambing sites were used in 2010 within the portion of the I-8 Island within and directly adjacent to Site 1.

The 2011/2012 HELIX/Western Tracking Institute PBS study conducted to date indicates that with the exception of the portion of the I-8 Island in the southwest portion of Site 1, the project area is not currently occupied. Recent sign has been found in the PBS study areas including along Devil's Canyon to the south of Site 1, the I-8 Island, Mortero Canyon west of Site 1, and the Coyote Mountains north of Site 1. With the exception of the I-8 Island, no PBS or recent PBS sign have been found within the OWEF project site. Historic PBS sign has been documented within each of the three PBS survey areas. The historic sign noted thus far includes tracks and numerous bedding areas documented along ridgelines in the southwest portion of Site 1 and the southwest portion of Site 2. The sign documented to date is not considered to be from recent PBS activity because evidence of recent activity (e.g., scat, fresh tracks, and/or hair) has not been documented. The recent sign documented to date (outside of the OWEF project site) includes several sightings of groups of rams to the south, west and north of Site 1 as well as recent scat and tracks to the south, west, and north of Site 1. In addition, the motion-triggered cameras have not documented movement of PBS into the OWEF project area. These results suggest these areas have been used in the past, but have not been used recently by PBS. The results of the PBS study conducted to date reinforce that PBS may occasionally cross through the OWEF project site as part of seasonal movements between Carrizo Gorge and the Coyote Mountains (along Mortero Canyon wash), but they are not considered regular movement areas.

PBS have recently recolonized the I-8 Island. CDFG is currently conducting a tracking study of 6 radio-collared PBS ewes. The CDFG tracking data obtained thus far indicate that in 2010, ewes moved from Carrizo Gorge into the I-8 Island, used the Island area for lambing in 2010, and stayed in the Island area for several months of 2010. While the CDFG tracking study is providing some initial information on PBS use in the area, the study is following only 6 ewes, which amounts to less than 10 percent of the PBS population in the area. With the exception of the I-8 Island, there have not been other recorded sighting of PBS in project site by HELIX, the CDFG tracking study, or in the USFWS database of PBS locations.

The point locations also thus far indicate that PBS move seasonally between Carrizo Gorge and the Coyote Mountains using Sweeney Pass (R. Botta, CDFG, pers. comm., 2010, as cited in USFWS, 2010b). Sweeney Pass is located northwest of the main portion of the Coyote Mountains and approximately 6 miles northwest of Site 1. As noted above, the survey results of the PBS study indicate that PBS may occasionally cross through the proposed OWEF site along the Mortero Canyon wash, but the primary movement area between the Coyote Mountains and Carrizo Gorge is along Sweeney Pass.

The southwest portion of Site 1, the west-central portion of Site 1, and the southwest portion of Site 2 are partially within USFWS Essential Habitat. The USFWS defined Essential Habitat in the PBS Recovery Plan (USFWS, 2000) as areas within 800 m (one-half mile) of slopes equal to or greater than 20 percent. Twenty percent slopes was determined based on a number of studies from the 1980s and 1990s, which noted that most bighorn sheep sightings were associated with slopes that were 20 percent or greater. The distance of 800 m was determined based on several studies in the Peninsular Ranges that noted that bighorn sheep were frequently observed within 800 m of mountainous habitat feeding in or moving across washes and alluvial fans and that bighorn sheep do not venture far from water sources.

For the purposes of the proposed OWEF, the USFWS-defined Essential Habitat is equated to suitable PBS habitat, which is the manner in which USFWS defined suitable habitat for the Sunrise Powerlink Project (USFWS, 2010c), which will cross through Site 1. The use of Essential Habitat to define suitable PBS habitat is supported by three lines of evidence: (1) two PBS predictive habitat models were developed by Rubin, et al. (2009) and the results of those models did not predict PBS habitat outside of the Essential Habitat areas within the proposed OWEF site; (2) radio collar data obtained from CDFG and PBS location data obtained from USFWS do not include any locations outside of Essential Habitat within the proposed OWEF site ; and (3) no PBS have been documented by HELIX/Western Tracking Institute outside of Essential Habitat areas during other biological surveys conducted within the proposed OWEF site, which accounts for over 5,000 hours of survey time between 2009 and 2011.

3.23.2 Applicable Regulations, Plans, and Standards

This section provides a discussion of federal, State, and regional environmental regulations, plans and standards applicable to the OWEF for wildlife resources.

3.23.2.1 Federal Regulations

NEPA

NEPA (42 U.S.C. 4321 et seq.) declares a continuing federal policy that directs "a systematic, interdisciplinary approach" to planning and decision-making and requires environmental statements for "major Federal actions significantly affecting the quality of the human environment." Implementing regulations by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508) requires federal agencies to identify and assess reasonable alternatives to proposed actions that will restore and enhance the quality of the human environmental and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of federal actions. The BLM is the Lead Agency under NEPA for the OWEF.

Federal Endangered Species Act

The ESA designates threatened and endangered animals and plants and provides measures for their protection and recovery. "Take" of listed animal species and of listed plant species in areas under federal jurisdiction is prohibited without obtaining a federal permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." (USFWS, 1973) Harm includes any act that actually kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage the habitat of (i.e., harm) listed wildlife species require approval from the USFWS for terrestrial species. The ESA also generally requires determination of critical habitat for listed species. If critical habitat has been designated, impacts to areas that contain the primary constituent elements identified for the species, whether or not the species is currently present, is also prohibited. ESA Section 7 and Section 10 provide two pathways for obtaining authority to take listed species.

Under Section 7 of the ESA, a federal agency that authorizes, funds, or carries out a project that "may affect" a listed species or its critical habitat must consult with USFWS. For example, the ACOE must issue a permit for projects impacting non-wetland Waters of the U.S. or wetlands under ACOE jurisdiction. In a Section 7 Consultation, the lead agency (e.g., ACOE) prepares a biological assessment (BA) that analyzes whether the project is likely to adversely affect listed wildlife or plant species or their critical habitat, and proposes suitable avoidance, minimization, or compensatory mitigation measures. If the action would adversely affect the species, USFWS then has 30 days to respond to federal agency regarding the adequacy of the analysis of effects to the species addressed in the BA. If the BA is deemed adequate, then consultation is initiated. At the end of the consultation (135 days by regulation), the USFWS issues its Biological Opinion determining whether the project is likely to jeopardize the species or result in adverse modification of critical habitat. If a "no jeopardy" opinion is provided, the project may proceed. If a jeopardy or adverse modification opinion is provided, the USFWS may suggest "reasonable and prudent measures" that would result in no jeopardy.

Under Section 10(a)(1)(B) of the ESA private parties or local governments planning activities with no federal nexus (i.e., no federal agency will authorize, fund, or carry out the project) may obtain an Incidental Take Permit to harm listed species incidental to the lawful operation of a project. To obtain an incidental take permit, the applicant must develop a habitat conservation plan (HCP) which specifies effects to listed species, provides minimization and mitigation measures and funding, discusses alternatives considered and the reasons why such alternatives are not being used. If the USFWS finds that the HCP will not "appreciably reduce the likelihood of the survival and recovery of the species" it will issue an incidental take permit. Issuance of incidental take permits requires the USFWS to conduct an internal Section 7 consultation, thus triggering coverage of any listed plant species or critical habitat present on site (thus, listed plants on private property are protected under ESA if a listed animal is present). Unlike a Section 7 consultation, the USFWS is not constrained by a time limit to issue an incidental take permit.

BLM Sensitive Species

BLM Sensitive Species are species designated by the State Director and includes only those species that are not already federal listed proposed, or candidate species, or State listed because of potential endangerment. BLM's policy is to "ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered." Various offices of the BLM maintain a list of special status plant and wildlife species that are to be considered as part of the management activities carried out by the BLM on the lands that they administer.

California Desert Conservation Area Plan

The California Desert Conservation Area (CDCA) covers approximately 25 million acres of land in southern and southeastern California, with approximately 10 million acres being administered by the BLM. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development and protection of the resources and public lands within the CDCA and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality.

The multiple use classes comprise the backbone of the Plan, essentially zoning the CDCA into four major multiple use categories, as a city or county is zoned for land use classes. The Plan categories include approximately four million acres of Class C (controlled) lands (including roughly 3,600,000 acres of wilderness areas created under the 1994 California Desert Protection Act) to be preserved in a natural state with access generally limited to non-motorized, non-mechanized means; approximately four million acres of Class L (limited use) lands, providing for generally lower intensity, carefully controlled uses that do not significantly diminish resource values; approximately 1.5 million acres of Class M (moderate use) lands designated for mining, livestock grazing, recreation, energy, and utility development with mitigation required for any damage caused by permitted uses; and approximately 500,000 acres of Class I (intensive use) lands managed for concentrated uses with reasonable protection provided for sensitive natural values and mitigation of impacts and rehabilitation of impacted areas occurring when possible (BLM, 2007).

The Plan's goals and actions for each resource are established in its 12 elements including the Wildlife Element and the Energy Production and Utility Corridors Element, among several others (BLM, 2007). The proposed OWEF site is located within Class C and Class L lands (BLM, 1980, fold-out map). While there have been amendments to the 1980 Plan, such as the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), none of the amendments affect the proposed OWEF site.

According to the Plan's Multiple Use Class Guidelines, wind/solar power plants are not allowed within Class C lands but may be allowed within Class L lands after NEPA requirements are met (BLM, 1980). The Plan also states, however (in the Energy Production and Utility Corridors Element section), that

"Plan amendment procedures will adequately provide for the coordination needed for assuring rapid implementation of these important fuel-replacement alternative energy programs in an environmentally sound manner." (BLM, 1980)

Flat-tailed Horned Lizard Rangewide Management Strategy

The Flat-tailed Horned Lizard Rangewide Management Strategy was prepared in order to provide management and conservation guidelines for FTHL habitat throughout the species' range. Five Management Areas (MAs), four of which are in California, were designated in order to promote the maintenance of self-sustaining stable or increasing populations. For habitat outside of the MAs, a land mitigation and compensation program is in effect to balance future activities in FTHL habitat. The proposed OWEF site is adjacent to the Yuha Desert Management Area located south of I-8.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations that protect migratory birds, (including their parts, eggs, and nests) from killing, hunting, pursuing, capturing, selling, and shipping unless expressly authorized or permitted.

Lacey Act, as amended (16 USC 3371-3378)

This Act protects plants and wildlife by creating civil and criminal penalties for a wide variety of violations including illegal take, possession, transport or sale of protected species.

The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) prohibits take, which is defined as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, disturb, or otherwise harm eagles, their nests, or their eggs." Under the BGEPA, "disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle; (2) decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. On September 11, 2009, (*Federal Register,* 50 CFR parts 13 and 22), the USFWS set in place rules establishing two new permit types: (1) take of bald and golden eagles that is associated with, but not the purpose of, the activity; and (2) purposeful take of eagle nests that pose a threat to human or eagle safety. Specifically, the BGEPA authorizes intentional take of eagle nests: where necessary to alleviate a safety hazard to people or eagles; necessary to ensure public health and safety; the nest prevents the use of a human-engineered structure; the activity, or mitigation for the activity, will provide a net benefit to eagles; and allows inactive nests to be taken only in the case of safety emergencies.

As described in the USFWS Draft Eagle Conservation Plan (ECP) Guidance dated January 2011 (USFWS, 2011b), the USFWS recommends that project proponents prepare an ECP to avoid, minimize, and mitigate project-related impacts to eagles to ensure no-net-loss to the golden eagle population. Pursuant to BLM Instructional Memorandum (IM) 2010-156, the BLM will request "concurrence" from the USFWS that the ECP meets specific requirements. Ocotillo Express LLC has prepared a draft ECP (OE, 2011).

3.23.2.2 State Law and Regulations

California Endangered Species Act

The California ESA provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike ESA, State listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to ESA, and is prohibited for both listed and candidate species. Take authorization may be obtained by the project applicant from CDFG under CESA Sections 2091 and 2081. Section 2091, like ESA Section 7, provides for consultation between a State lead agency under CEQA and CDFG, with issuance of take authorization if the project does not jeopardize the listed species. Section 2081 allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFG to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

CEQA

The CEQA was enacted in 1970 to provide for full disclosure of environmental impacts to the public before issuance of a permit by State and local public agencies. In addition to federal or State listed species, "sensitive" plants and animals receive consideration under CEQA. Sensitive species include, but are not limited to, wildlife Species of Special Concern listed by CDFG, and plant species on the California Native Plant Society's List 1A (presumed extinct), List 1B (rare, threatened, or endangered in California and elsewhere; eligible for State listing), or List 2 (rare, threatened, or endangered in California but more common elsewhere; eligible for State listing).

California Fish and Game Code

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFG cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, is the responsibility of the CDFG to maintain viable populations of all native species. To that end, the CDFG has designated certain vertebrate species as Species of Special Concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

3.23.2.3 Regional and Local Plans, Policies, and Regulations

Imperial County General Plan

The Conservation and Open Space Element and Land Use Element of the General Plan (Imperial County, 1993 and 2008) direct the County to evaluate the compatibility of proposed development projects with the preservation of biological resources and open space.

The Goals and Objectives of Conservation of Environmental Resources and Preservation of Biological Resources within the Conservation and Open Space Element related to sensitive animal species include the following:

Goal 1: Environmental resources will be conserved for future generations by minimizing environmental impacts in all land use decisions.

Objective 1.1 Recognize that the degradation of one natural resource will have a concomitant negative effect upon the total resource base, including water, vegetation, air, wildlife, soil, and minerals.

Objective 1.2 Encourage only those uses and activities that are compatible with the fragile desert, aquatic, and marshland environment.

Objective 1.3 Coordinate the acquisition, designation, and management of important natural resource areas in Imperial County with other appropriate governmental agencies as necessary.

Objective 1.4 Develop standards to protect significant natural resource areas for the purpose of enhancing both the planning and decision-making process.

Objective 1.5 Provide for the most beneficial use of land based upon recognition of natural constraints.

Objective 1.6 Ensure the conservation, development and utilization of the County's natural resources.

Objective 1.7 Provide the opportunity for enjoyment of a quality natural experience to present and future generations.

Objective 1.8 Encourage the acquisition of scientific knowledge by encouraging the preservation of important ecological, archaeological, and other scientific sites.

Goal 2: The County will preserve the integrity, function, productivity, and long-term viability of environmentally sensitive habitats, and plant and animal species.

Objective 2.2 Protect significant fish, wildlife, plant species, and their habitats.

Objective 2.3 Protect unique, rare, and endangered plants and animals and their habitats.

Objective 2.4 Use the environmental impact report process to identify, conserve and enhance unique vegetation and wildlife resources.

Objective 2.5 Give wildlife conservation a high priority in County park acquisition and development programs.

Objective 2.6 Attempt to identify, reduce, and eliminate all forms of pollution which adversely impact vegetation and wildlife.

Objective 2.7 Discourage the use of wild native animals as pets.

Objective 2.8 Adopt noise standards which protect sensitive noise receptors from adverse impacts.

The Goals and Objectives of Protection of Environmental Resources within the Land Use Element related to sensitive animal species include the following:

Goal 9: Identify and preserve significant natural, cultural, and community character resources and the County's air and water quality.

Objective 9.1 Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes.

Objective 9.3 Adopt noise standards which protect sensitive noise receptors from adverse impacts.

An analysis of compatibility will be provided in Section 4.17 and 4.23, as appropriate.